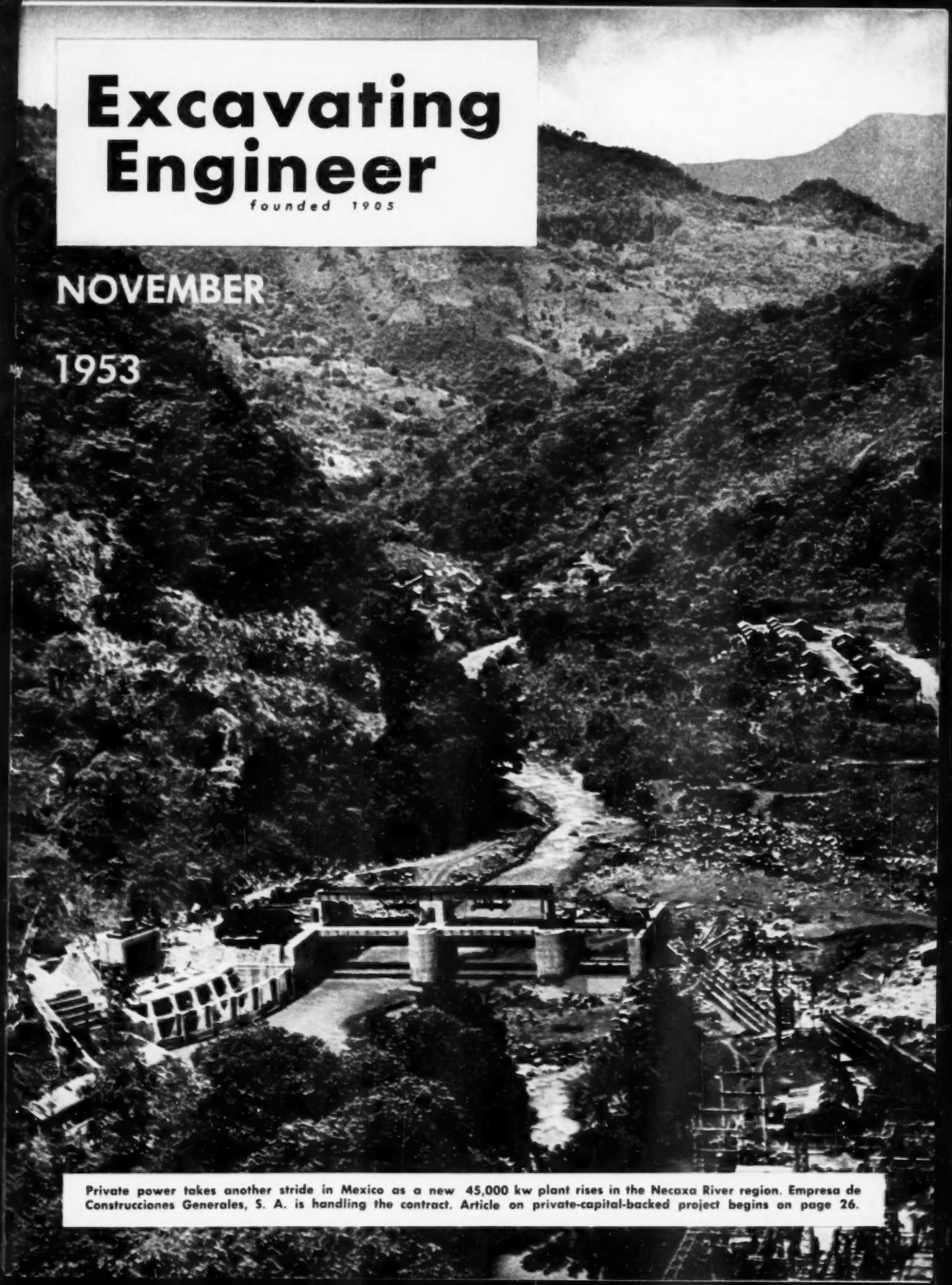
Excavating Engineer

founded 1905

NOVEMBER

1953

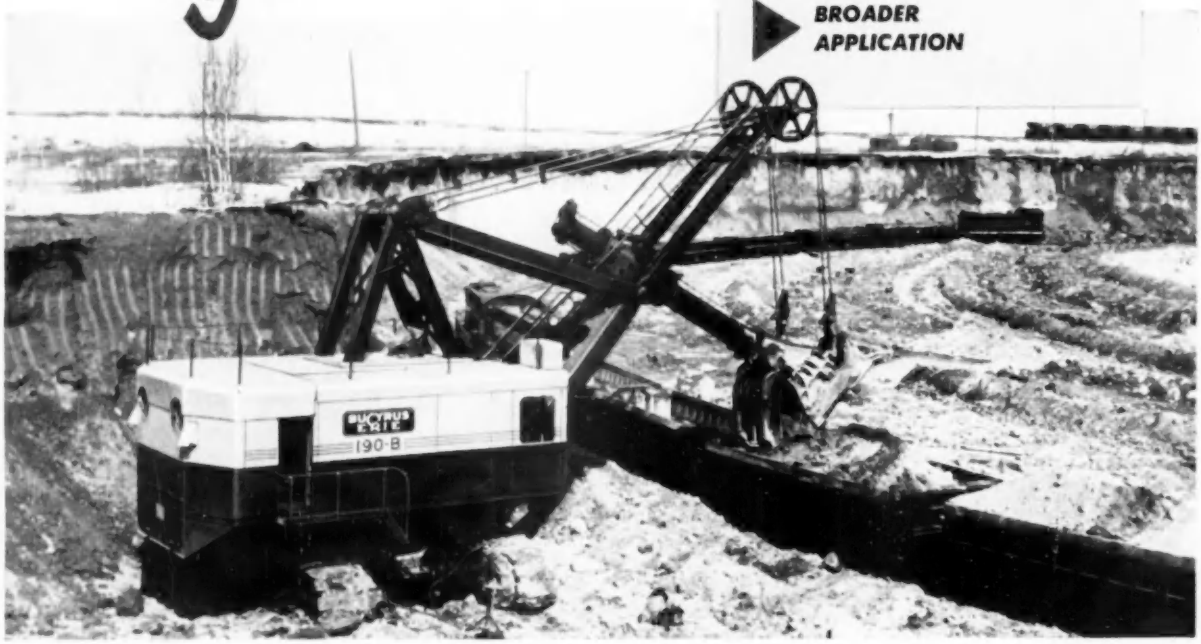


Private power takes another stride in Mexico as a new 45,000 kw plant rises in the Necaxa River region. Empresa de Construcciones Generales, S. A. is handling the contract. Article on private-capital-backed project begins on page 26.

IN QUARRY AND MINING SHOVELS

Which Advantage do You Want Most?

1. **LARGER DIPPER CAPACITY**
2. **MORE OUTPUT**
3. **LESS DOWNTIME**
4. **LOWER OPERATING COSTS**
5. **BROADER APPLICATION**



YOU CAN HAVE THEM ALL with the new Bucyrus-Erie Ward Leonard electric shovels. Featuring advanced front end design, these machines are setting new standards in loading and stripping performance. That's because *only* Bucyrus-Erie offers these outstanding modern features in quarry and mining shovel front-end construction.

BOOM — Two section — light upper section, rugged lower section. No excess weight. Weight and strength concentrated where needed and close to center of rotation.

Lower boom section part of main machine, through twin strut connections to A-frame. Boom feet wide spread — no sway braces or cables. No boom jacking.

TYPE OF HOIST — twin dual, single-part ropes, one attached to each side of dipper. Power automatically concentrated where needed on dipper lip to break through bank obstructions. No dipper bail.

SADDLE BLOCK — Cylindrical. Rubber cushioned against impact during fast plugging of swing. No binding with flexed dipper handles.

HANDLE — Single, tubular, one-piece, can rotate in saddle block. No handle twist possible.

CROWD MACHINERY — Located on revolving frame, close to center of rotation. Position reduces swing inertia. Accessible, protected.

TYPE OF CROWD — Quiet, positive, independent twin rope crowd and retract. Adapts itself to tubular handle rotation — low friction — less crowd power required.

CONVERTIBILITY — Shovels fully convertible to draglines of the independent motor type — no operating clutches or brakes.

There are many more reasons why these modern Bucyrus-Eries are the finest quarry and mine excavators ever built. Get the full story today. 30L53C

110-B — 4½ cu. yd. • 190-B — 6 cu. yd. • 190-B — 8 cu. yd.

BUCYRUS ERIE

South Milwaukee Wisconsin

more WORK in a WEEK with CAT* equipment

Moving earth for an underpass on the Ramona Freeway, near Ontario, California, Contractor J. A. Payton uses Caterpillar DW21 Tractors and No. 21 Scrapers.

The big yellow rigs haul average loads of 14 bank yards. They load in one minute, spread in 10 seconds, and make the 2-mile round trip in 9 minutes. That's good cycle-time for any earthmoving unit.

But what shows up on the profit sheet is the fact that the DW21s *keep up that pace 10 hours a day and 6 days a week.*

No matter how fast or powerful your rig may be, it's not making money when it's in the yard for repairs. Mr. Payton says: "I don't buy equipment because I like to stand and look at it. I buy it to use and make money with, and when a machine is down it's losing money. I know any piece of equipment will wear out sometime, but when it does I want a dealer who can give me service and keep it running. In Caterpillar machines and dealer service I get most for my money."

If you want proof that a Cat DW21 rig will turn out more work at a bigger profit over any extended period of time, your Caterpillar Dealer can give it to you. Ask him for a demonstration on your own job!

Caterpillar Tractor Co., Peoria, Illinois.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks—®

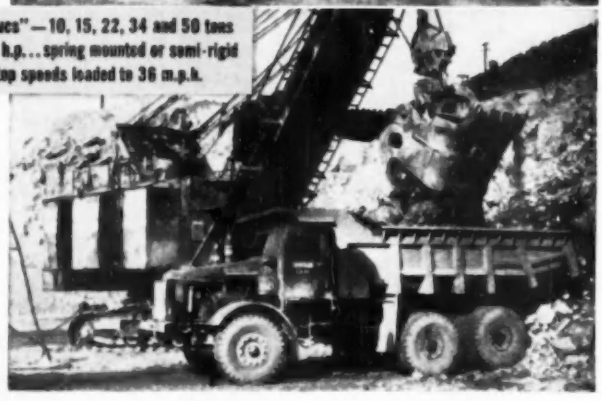
NAME THE DATE... YOUR DEALER WILL DEMONSTRATE

"Eucs" SURE DO THE JOB!

Euclid Scrapers—12, 15.5 and 18 cu. yds. struck...190 to 400 h.p. engines... top speeds, loaded to 30 m.p.h.

Bottom-Dump Euclids—13, 17 and 25 cu. yds.... 190 to 300 h.p....top speeds loaded to 35 m.p.h.

Rear-Dump "Eucs"—10, 15, 22, 34 and 50 tons ...125 to 600 h.p....spring mounted or semi-rigid drive axles...top speeds loaded to 36 m.p.h.



On construction and mining jobs the world over you'll hear owners say, "those 'Eucs' make more money for us and do more work than any equipment we've ever used." Operators, too, like "Eucs" because they're easy to handle and have plenty of what it takes to haul and dump big loads in tough going.

There are lots of reasons why men who know earth moving equipment specify Euclids, but they all add up to one simple fact . . . "Eucs" move more loads per hour at the lowest cost per ton or yard of material moved. Profitable performance on all types of work is proved by the fact that over 60% of all Euclid equipment sold is repeat business from satisfied users.

When competitors are using "Eucs" to move dirt or rock faster and cheaper than you are, you can't afford to pass up the cost cutting advantages you get in Euclid equipment. For the recommendations of a hauling equipment specialist and a production and cost estimate on your job, get in touch with your Euclid distributor . . . there's no cost or the slightest obligation.

The EUCLID ROAD MACHINERY Co., Cleveland 17, Ohio

EUCLID (GREAT BRITAIN) LTD. • GLASGOW, SCOTLAND

CABLE ADDRESS, YUKLID CODE: BENTLEY

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

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Excavating Engineer

founded 1905

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Why "breathing space" between each wire?

- To provide maximum flexibility—tiny, precise amounts of "breathing space" are engineered between each of these wires.
- There are 295 wires in this particular construction . . . 9 different sizes of wire.
- All wires are drawn in Macwhyte's plant to assure uniform quality.
- Heavy, tenacious lubricants fill the spaces between wires. This *Internal Lubrication* guards against corrosion and friction, and also increases flexibility.
- Macwhyte's PREforming process forms the wires and strands into a spiral so they lie naturally in place with a minimum of internal stress.
- From a thousand and one wire ropes, Macwhyte engineers are ready to recommend the right rope for your particular needs. For best, lowest cost wire rope service, write today for recommendations of the best constructions of rope to use on all your equipment.

This Macwhyte Rope is 6 x 41 Filler Wire PREformed Lang Lay Monarch Whyte Strand with IWRC, just one of the thousand and one wire ropes made by Macwhyte.

MACWHYTE WIRE ROPE

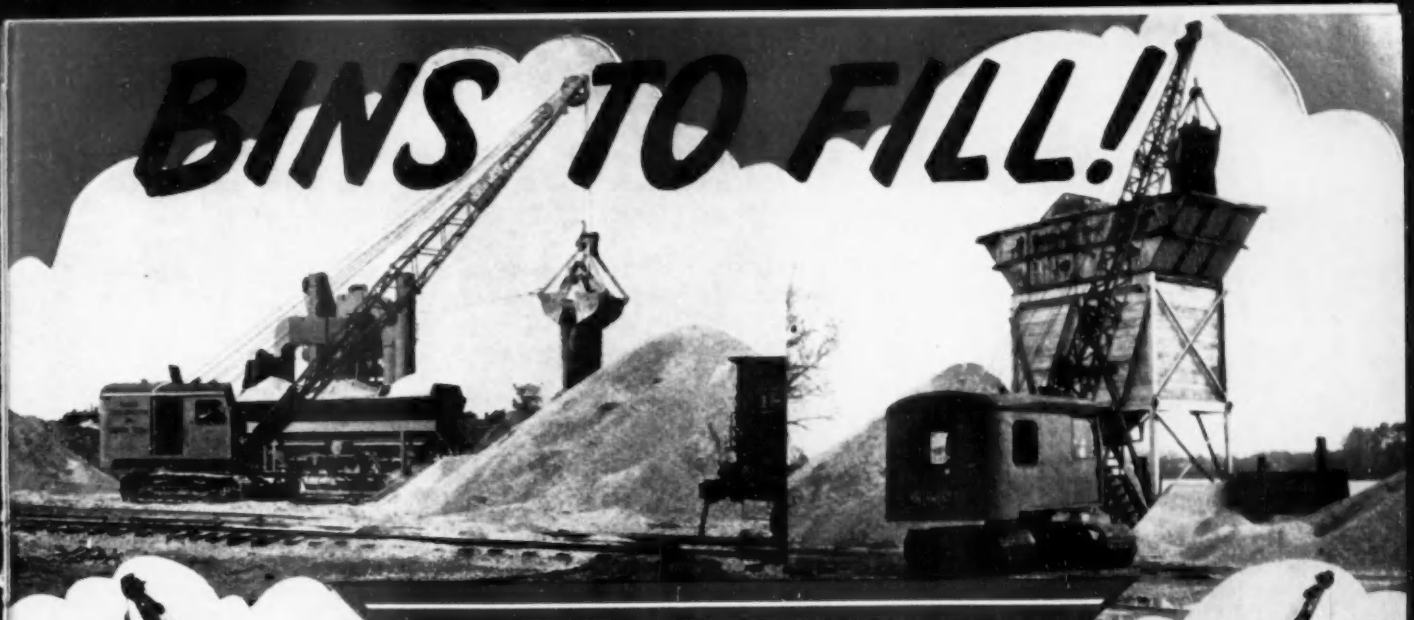
THE RIGHT ROPE FOR YOUR EQUIPMENT

Ask for G-15 Wire Rope Handbook

MACWHYTE COMPANY
KENOSHA, WIS.

Macwhyte Company, *2903 Fourteenth Avenue, Kenosha, Wis. Manufacturers of Internally Lubricated PREformed Wire Rope, Braided Wire Rope Slings, Aircraft Cables and Assemblies, Monel Metal, Stainless Steel Wire Rope and Wire Rope Assemblies. Mill depots: New York • Pittsburgh • Chicago • St. Paul • Fort Worth • Portland • Seattle • San Francisco • Los Angeles • Distributors throughout U.S.A.*

BINS TO FILL!



ROAD WORK ahead! And lots of it for years to come! That means bins to fill.

easy . . . smooth. The "Feather-Touch"

pumps, compressors, valves, tubes or other [illegible] mechanism to get out of adjustment and shut down operation.

Uniform Pressure Swing Clutches eliminate the jerks and grabs that set a load swinging and throw up spoonfuls or increase spillage—these clutches are gentle, sure, smooth acting that gives a man full control of the bucket.

Northwest mobility makes relocation easy with the minimum waste of time. On the larger Northwest [illegible]

while turning as well as when going straight ahead negotiates hard soil conditions without the ground [illegible] action of ordinary crawlers.

If you're going to have bins to fill, take a look at Northwest—there's nothing faster with a clam shell.

NORTHWEST
ENGINEERING COMPANY
1500 Field Building
135 South LaSalle Street
Chicago 3, Illinois

MAKE IT EASY WITH

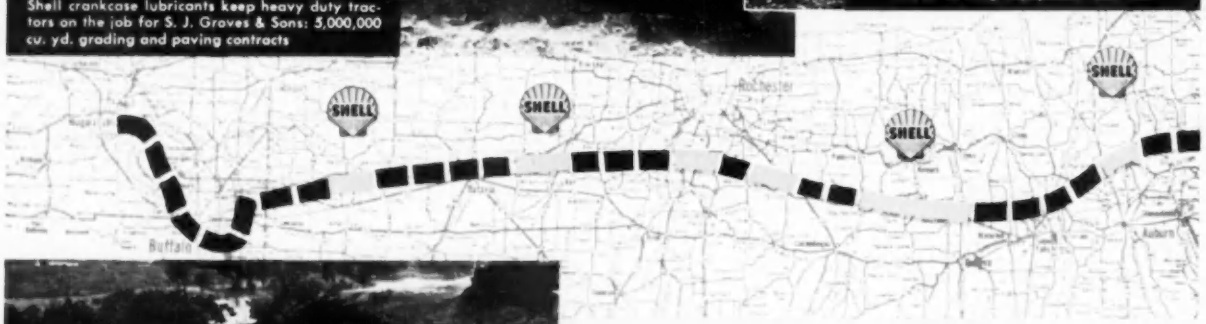
NORTHWEST

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

On the New York State Thruway

Shell crankcase lubricants keep heavy duty tractors on the job for S. J. Groves & Sons: 5,000,000 cu. yd. grading and paving contracts

A single Shell grease normally lubricates all grease fittings on earth moving equipment like this



Severe operation causes no motor problem with Shell Heavy Duty oil in the crankcase

Shell E. P. Gear Lubricant takes the punishment during rough going on steep grades

Arute Bros., Inc., depend upon the "stay-put" qualities of Shell's Multi-Purpose Grease for continuous heavy duty work

... 1 out of every 3 construction miles uses SHELL PRODUCTS *exclusively*

That's just one way of saying that Shell has been awarded contracts by companies responsible for building sections of the New York State Thruway totaling over one third of the entire mileage. And the contracts are still coming in!

Trucks, shovels, dozers, graders . . . all equipment run by gasoline or diesel engines on those long stretches of highway construction . . . benefit from the outstanding performance of Shell heavy duty lubricants.

Products that can win the unqualified preference of such responsible and efficient operators must have what it takes . . . and Shell products *have* it . . . plenty!

Most popular on the Thruway, and equally popular wherever heavy duty engines operate, Shell lubricants keep on protecting, defying wear, and keeping maintenance costs at rock bottom. Why not specify Shell for your equipment?

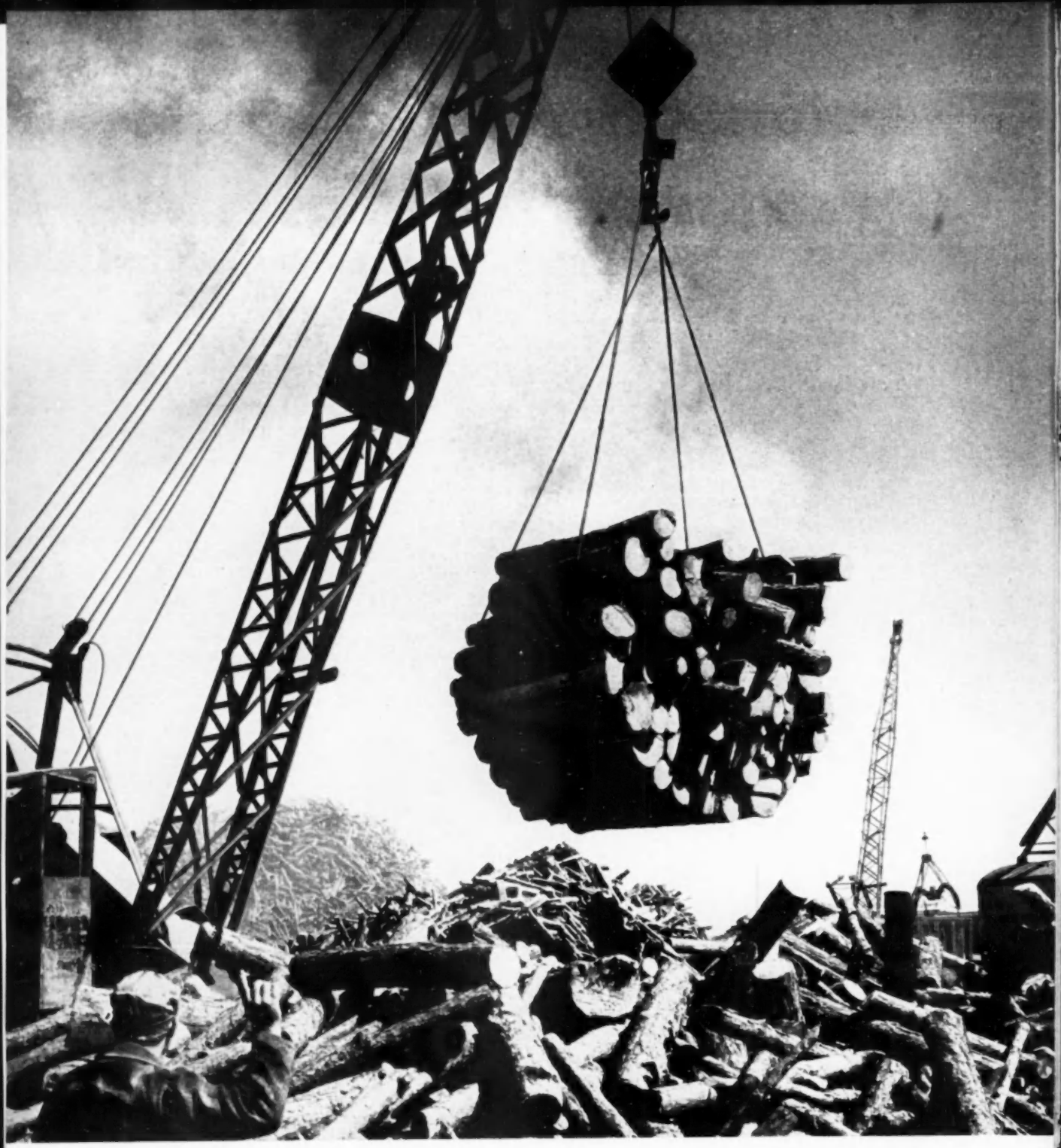
Thruway Map © by General Drafting Co., Inc., Convent Station, N. J.

2½ cu. yd. Shovels thrive on Shell Heavy Duty Lubricants under extremes of load conditions

SHELL OIL COMPANY

50 WEST 50TH STREET, NEW YORK 20, N. Y.
100 BUSH STREET, SAN FRANCISCO 6, CALIF.

SHELL



Wire Rope at Work – This is the woodyard at Kraft Center, Cantonment, Fla., one of the largest enterprises of the St. Regis Paper Company. Here they build and move mountains – enormous mountains of logs. The stockpiles normally carry an inventory of 30,000 cords, and 1200 to 1400 cords are fed daily to the chippers at the paper mill.

The cranes you see in the yard are moving vast quantities of pulpwood, building up reserves so that the mill, with its healthy appetite for logs, will never go hungry. This is a job, too, for Bethlehem Wire Rope, which is rigged on the hard-working cranes. It is a punishing chore by any standard, the kind entrusted to Bethlehem rope in virtually every type of industry, wherever there's lifting or hauling to be done.

Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

Mill depots and distributors from coast to coast stock Bethlehem rope for the following industries and numerous others:

MINING • CONSTRUCTION • PETROLEUM • EXCAVATING • QUARRYING • LOGGING • MANUFACTURING

BIG RED TEAM *

Bucyrus-Erie scraper and TD-24 tractor.

PAYS OFF WITH *More Paydirt!*

BIGGER LOADS EVERY TRIP . . .

You get heaped loads faster with a Bucyrus-Erie scraper's boiling-action loading. This has been proved time and time again in actual field tests. The loading action breaks up big chunks to give you a compact and uniform fill, and extra pounds of dirt in every cubic yard.

MORE TRIPS PER DAY . . .

Big tires, low center of gravity and increased all around stability give you the flotation and maneuvering ability for extra trips every working day. The streamlined gooseneck permits short turns. Dumping is quick and clean with positive rolling ejection. It all adds up to faster hauling cycles . . . and more dirt moved per day.

See your International Industrial Tractor Distributor soon for all the facts about the Big Red Team . . . it will pay you to use the equipment that delivers the most paydirt for your money.

12T53C

THREE B-TYPE SCRAPERS TO CHOOSE FROM

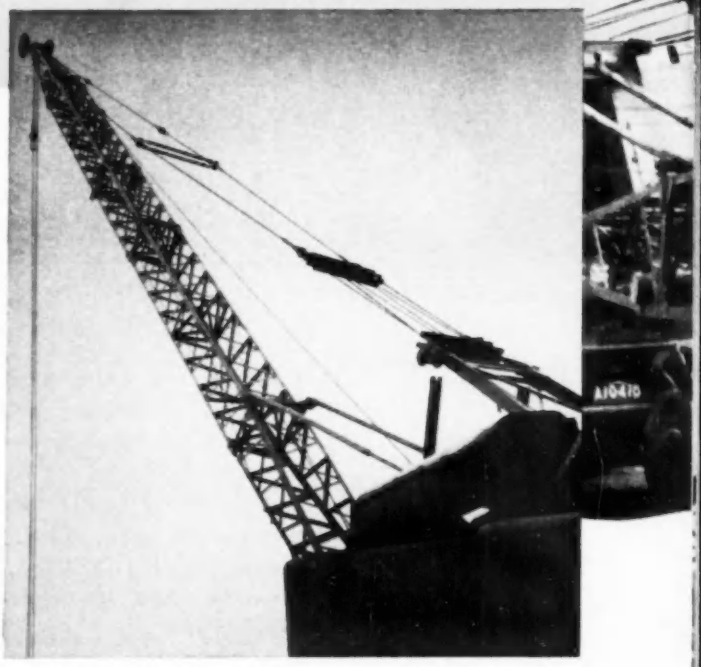
Model	Capacity	
	Struck	Heaped
B-250	22 cu. yd.	27½ cu. yd.
B-170A	16 cu. yd.	21 cu. yd.
B-113	10 cu. yd.	14 cu. yd.

BUCYRUS-ERIE COMPANY **BUCYRUS ERIE** SOUTH MILWAUKEE, WISCONSIN

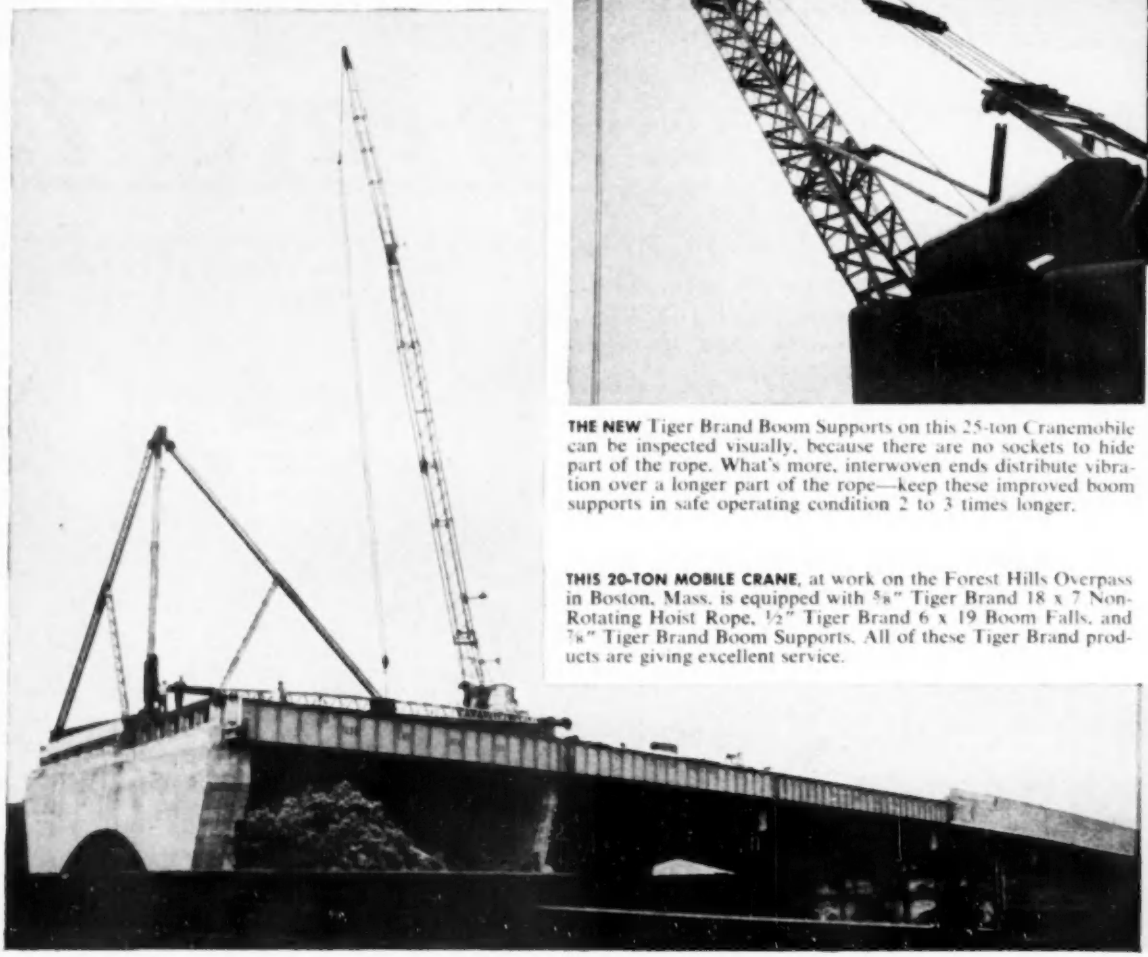
SEE YOUR INTERNATIONAL INDUSTRIAL TRACTOR DISTRIBUTOR

Crane rental company increases with these Improved Tiger Brand

The Right Wire Rope will do the trick!



THE NEW Tiger Brand Boom Supports on this 25-ton Cranemobile can be inspected visually, because there are no sockets to hide part of the rope. What's more, interwoven ends distribute vibration over a longer part of the rope—keep these improved boom supports in safe operating condition 2 to 3 times longer.



THIS 20-TON MOBILE CRANE, at work on the Forest Hills Overpass in Boston, Mass. is equipped with 5/8" Tiger Brand 18 x 7 Non-Rotating Hoist Rope, 1/2" Tiger Brand 6 x 19 Boom Falls, and 7/8" Tiger Brand Boom Supports. All of these Tiger Brand products are giving excellent service.

safety Boom Supports

Last year, Lee Crane Service, Inc., Boston, Mass., added an extra measure of safety to every one of its 14 truck cranes. It removed apparently sound—but potentially dangerous—boom supports equipped with ordinary zinced sockets and installed new Tiger Brand Boom Supports.

Visual inspection now possible

Here are the reasons for this change, as told by Mr. Joseph Veanor, owner of Lee Crane Service: "Easy *visual* inspection is the reason we switched to Tiger Brand Pendants. With the old zinced-socket type, we could never be positive that a pendant was completely safe because the sockets hid part of the rope.

"These Tiger Brand Pendants completely eliminate the use of sockets. As a result, we can see and inspect *every* part of the rope. If any wires are broken, we can replace the pendant before a failure occurs. In that way, we can be sure that every one of our booms is completely safe."

Last 2 to 3 times longer

Tiger Brand Boom Supports last longer than the old-fashioned socket type, because each end of the wire rope is tightly and permanently interwoven. This spreads strain and vibration over a much longer section of the rope, instead of concentrating all the strain right at the socket. As a result they last 2 to 3 times longer than other types.

Easily installed

Lee Crane Service had no trouble converting to these modern Tiger Brand Boom Supports. All fittings are standard size, so no alteration of equipment was required.

Send the coupon for more information on these improved boom supports. Or get in touch with our nearest sales office.

American Steel & Wire
Rockefeller Building
Cleveland 13, Ohio.

Please send my free copy of your descriptive folder on Tiger Brand Wire Rope Boom Support Assemblies.

Name.....

Company.....

Address.....

City.....State.....

AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL CORPORATION
GENERAL OFFICES: CLEVELAND, OHIO

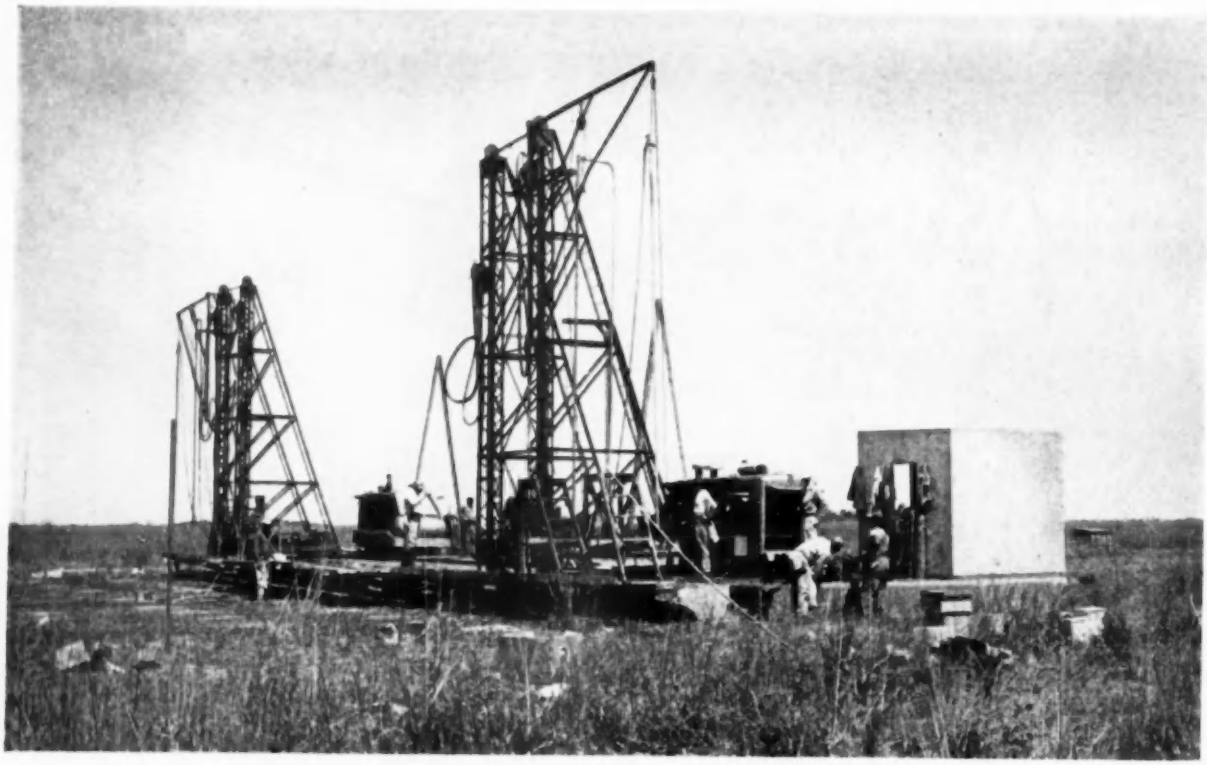
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO · TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed

USS

UNITED STATES STEEL



LAND-GOING DRILL BOAT

Helps Blast 16-Mile Canal through Florida's Everglades

Amphibious barge readily towed through water or overland, carries four I-R famous X71WD Drills powered by two I-R Gyro-Flo Compressors

Deep in the heart of Florida's Everglades, the Gahagan Construction Corporation of New York is engaged in drilling and blasting 2½ million cubic yards of coral rock. The rock lies in 16 miles of proposed drainage canals across the peat and semi-fluid waste land of the Everglades.

The contract covers part of a huge flood control and water conservation project that will consist of a series of levees and borrow pit drainage canals dividing the district into vast protected areas. An artificial lake 1500 square miles in area will be created which will be used to store excess flood waters until needed for irrigation and restoration of water levels during dry periods.

To drill 11 of the 16 miles of 90 foot canal under existing conditions required radical innovations in rock drilling equipment. A special all aluminum amphibious drill barge that can be towed through water and pulled overland was designed by Gahagan Construction Corporation to carry the compressors and drilling towers. The work is under the control of Jacksonville, Fla. District of the Corps of Engineers, U. S. Army.

Four Ingersoll-Rand X71-WD Drills were selected to do the drilling because of their high drilling speed and hole cleaning ability especially on deep holes. Two Ingersoll-Rand Gyro-Flo 600 cfm rotary compressors were chosen because of their light weight and ability to deliver high pressure air at full load.

Ingersoll-Rand makes a full line of contracting equipment. Ask about the I-R Contractors Combination.

947-5

Ingersoll-Rand

11 BROADWAY, NEW YORK 4, N. Y.

COMPRESSORS • ROCK DRILLS • AIR TOOLS • TURBO BLOWERS • CONDENSERS • CENTRIFUGAL PUMPS • DIESEL AND GAS ENGINES

Bucyrus-Erie
INDIVIDUAL DESIGN

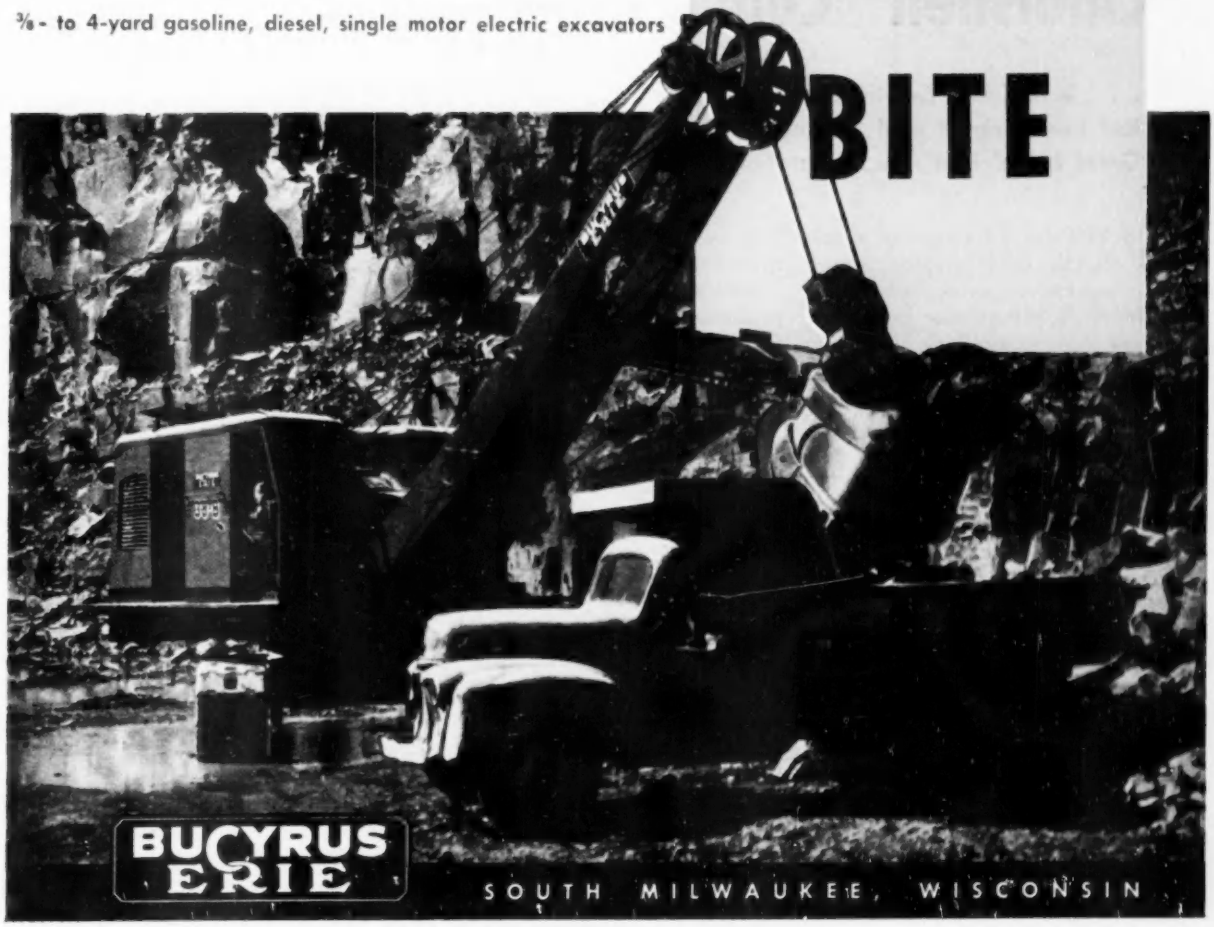
Rock, shale, dirt, gravel or sand — no matter what material you're digging or loading — you can handle it faster and more economically with a Bucyrus-Erie excavator.

That's because each of the machines in the Bucyrus-Erie 3/8- to 4-yard line is designed as an entirely separate model. Materials and construction are specified for best results in each machine's rated yardage capacity. There are no make-shift models. The size excavator you need *for your work* — that's exactly the size you get.

Perfect matching of machine to load is just one of many extra values resulting from *individual design*. Let your nearby Bucyrus-Erie distributor tell you about the many additional advantages it holds for you. See him soon! 72E53C

BIG LOADS at EVERY BITE

3/8- to 4-yard gasoline, diesel, single motor electric excavators



Excavating Engineer
founded 1905 NOVEMBER, 1953

Clamshell "Coal Passer"

. . . is the first link in a chain of operations producing fast bunkering of coal burning vessels at Lime Island, the Great Lakes' best refueling station for both coal and oil.

ON THE Great Lakes—one of the world's most heavily used waterway systems—speed is a watchword. Every skipper begrudges any time spent at the dock, especially the time required for refueling. That's one of the reasons the bunkering plant at Lime Island plays such an important part in Great Lakes shipping today.

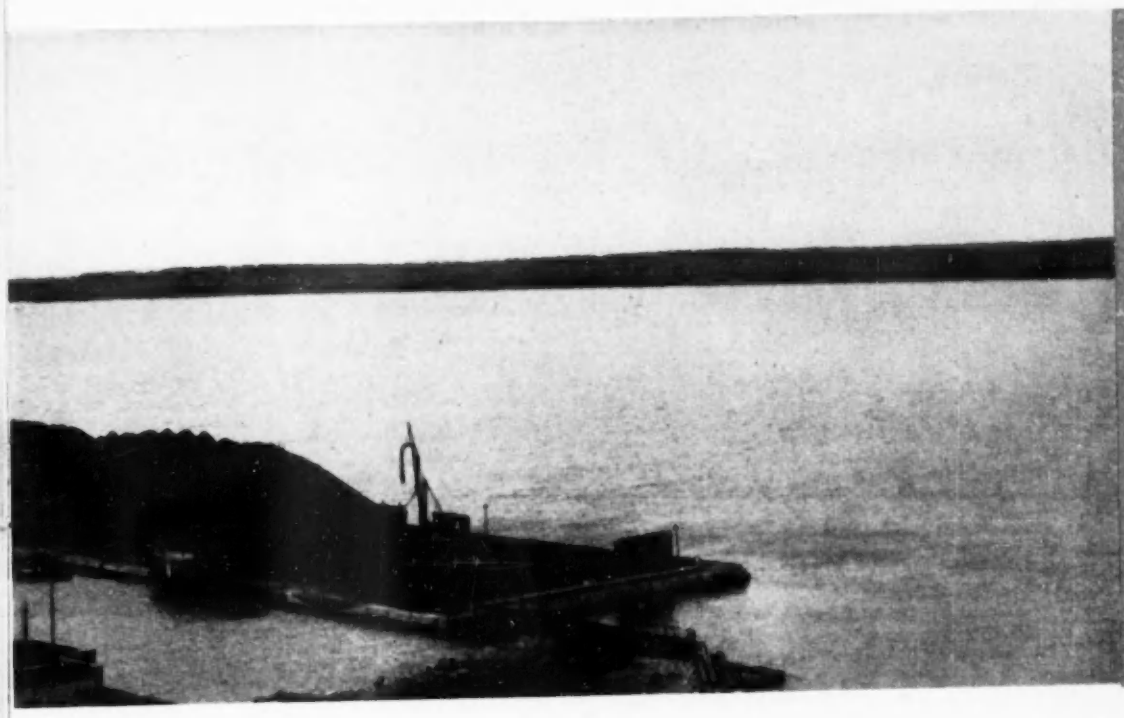
Since the summer of 1951 and with constant improvements since, the North Western-Hanna Fuel Company has offered the fastest refueling service on the Great Lakes (and perhaps in the world). The location is nearly ideal —about 35 miles below the Sault Ste. Marie locks and more-or-less midway on most iron ore hauls from Duluth, Superior, Marquette, Ashland, Ft. William or Port Arthur to Detroit, Cleveland, etc. The location of the dock is only 200 feet off the regular ship channel and a boat can dock by swinging only slightly from its course without changing general north or south direction. Average coal or oil bunkering operation is only about 20 minutes from casting of the first line for tie up to "full ahead."

This ability to fuel a ship with dependable speed is much more than a fortunate geographical location. North Western-Hanna has gone all out to equip its station with the best of coal handling, weighing, and conveying equipment supplemented with a dependable power and heat supply. Controls have been given special attention to interlock all parts of the operation. Station Superintendent Jim Fulton has the most important tribute to he success of the layout in his statement, "We've never lost a load in seven years' operation." The design and construction are such that even unusual breakdowns can be corrected speedily.

Warning — Two Whistles

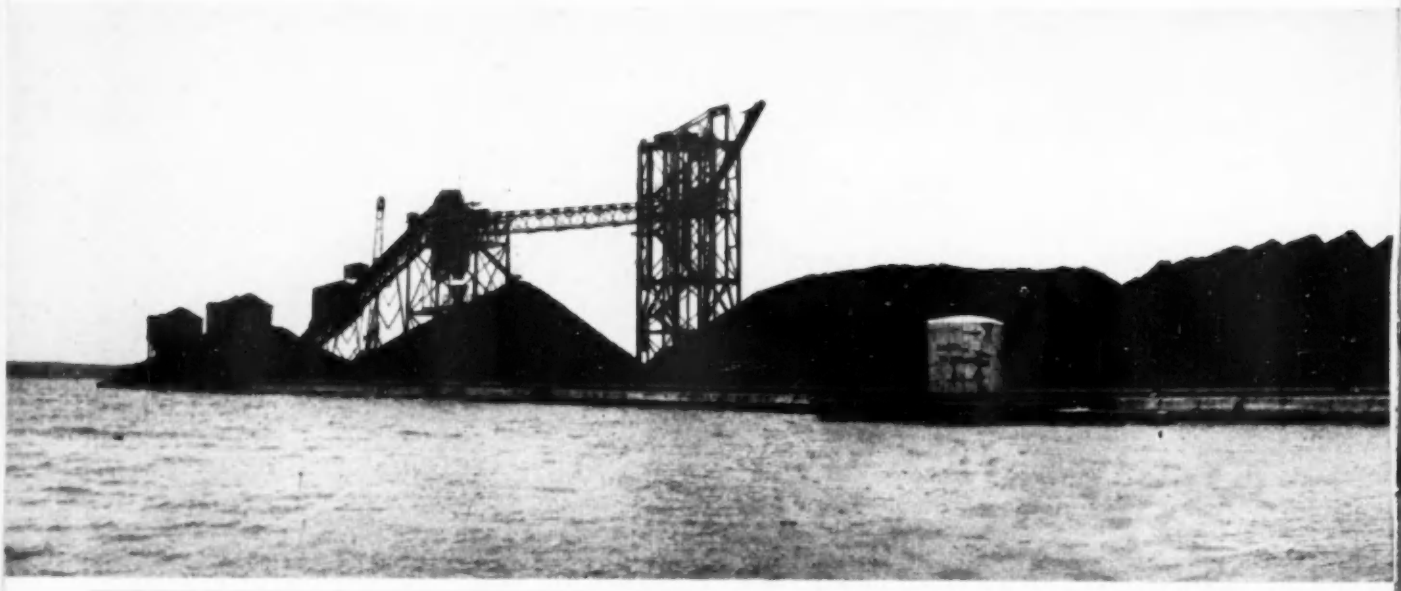
When the station attendants get their first warning—usually two whistle toots as a boat swings from its mid-channel course to make for the Lime Island pier—they must be ready to start a full flow of oil or coal into the

Bucyrus-Erie 38-B crane swings a 1½-yd. Hayward bucket from 65-ft. boom. Rig handles 300 tons per hour.



This is refueling pier as seen from top of oil tank. Oil pipeline encircles pier. Office and machine shop building in center foreground has bunks for "on call" period of night shift. Northwest crane at left is general utility machine kept on island.

Coal burning ore carrier L. D. Browning of Detroit, Mich., swings off channel to refill her hungry bunker.



Three principal coal storage areas on pier are clearly separated in this closeup. Four 100-ton hoppers are at far left.

Operator silhouetted in head tower enjoys an excellent view of vessel being bunkered as well as most of the plant.

boat's bunker in five minutes or less. The plant is normally operated by three men—tower operator, deck man, and clamshell crane operator. The tower man first goes out on the pier to see if the incoming boat is coal or oil burning.

If she's a coaler, he warms up the plant's 265-hp Diesel engine (Caterpillar D-364, V-8, with LeRoi 45-hp gasoline starter), clutches in the 167-kw generator and then climbs to the master control station in the delivery tower. The other two men receive thrown lines and tie up the vessel. The clamshell operator starts the engine on the crane and proceeds to keep feed hoppers full of coal. The deck man goes aboard the boat, directs the loading tower operator when necessary. All of this takes only a few minutes and the coal machinery is normally ready to deliver coal before the boat is finally tied in under the delivery chute. This chute telescopes from 32 to 50 feet to enable trimming of the fuel in bunkers of any vessel plying the Lakes.

The original fuel bunkering plant at Lime Island was built about 1910 by the Pittsburgh Coal Co. It is 100 feet wide by 800 feet long of wood cribbing filled with boulders. It stands in 30 feet of water, which depth is more than ample when compared to the maximum possible draft of about

Coal chute comes down from tower as L. D. Browning's winches clatter in last stage of tie-in. Tower operator's station is 60 feet above water level.

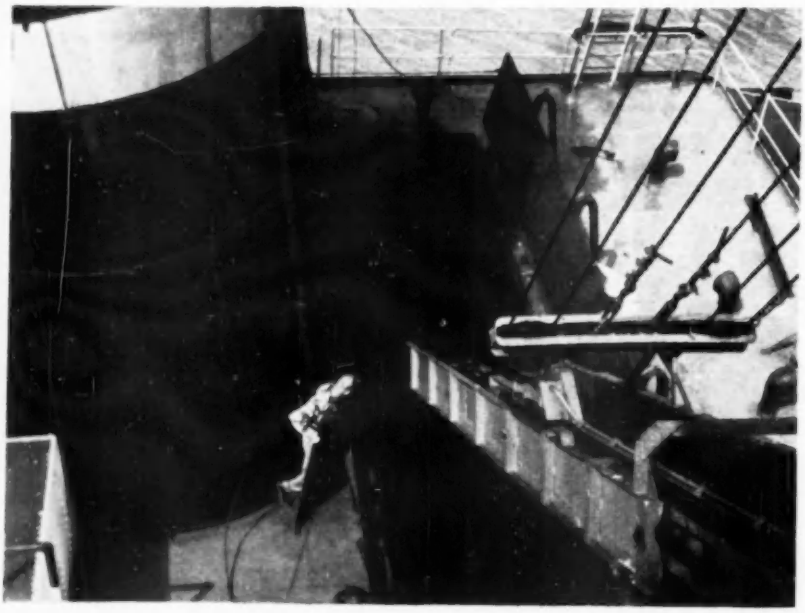
25 ft. 6 in. for boats passing through the Soo locks. Eight-foot concrete capping and sides were added to the dock in 1937. North Western-Hanna acquired the property (including the 1000-acre Lime Island and dock facilities) as a result of a merger in 1946. As originally equipped, the plant consisted of two 400-ton compartmented wooden hoppers fed from the bulk storage area by a pair of steam-driven Whirley cranes operating from common tracks laid on the dock floor. These same cranes were also used to unload coal from the bulk freighters that brought the bunker fuel from the Lower Lake ports. Vessels were bunkered by gravity chutes from the high wooden hoppers. Since 1948, all incoming cargoes have been received from self-unloader vessels, thus reducing the work required of the old steam rigs. The Whirleys and wooden hoppers have since been removed and receipts of coal by self-unloaders will continue since no provision has been made for other means of unloading cargoes by the new dock equipment.

The new plant, which started operations in late November 1951 is modern in all respects, designed for fast service 24 hours a day during the navigation period of approximately March 25 to December 18. Coal is stored on the 800-ft. long dock in three general areas. The first, at the south end, is live storage in that it can be reached by a Bucyrus-Erie 38-B crawler crane for direct transfer to bins which feed the bunkering equipment. A second area toward the center of the dock is close enough to live storage so that coal can be dressed over to the live area by stationing the crane midway between the two areas. Coal from this area must, of course, be handled twice to get it into the feeder bins.

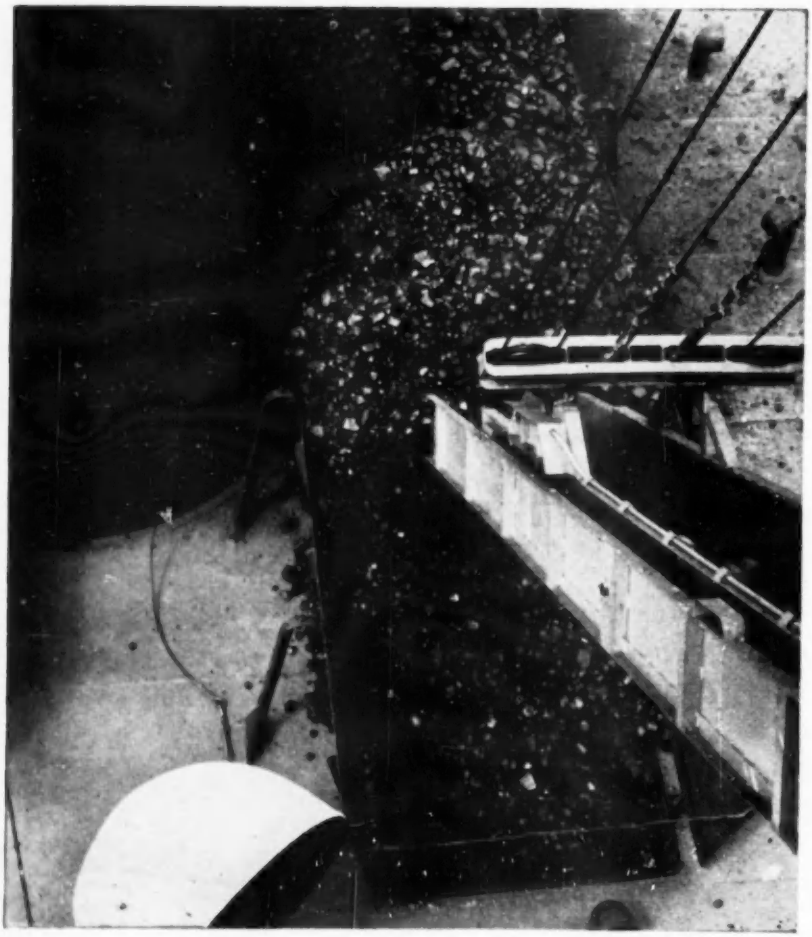
Coal Loaded Out

A third and largest area is at the north end of the pier beyond the loading tower. Coal from this area, when needed, is loaded out by a second crawler crane (a Northwest rig normally used for general utility work on the island) to a 6-ton International truck for hauling to the live storage area. As many as 1,800 tons of coal can be stored on the dock; 6,000 tons in the south "live" area; 2,500 tons in

Ore carrier takes coal supply on far side of pier. Delivery chute at right; clamshell crane is busy loading hoppers at left.



Operator lowers telescoping delivery chute into coal bunker at start of bunkering. Chute retractibility from 50 to 32 feet gives flexibility to bunkering operation.



The boat's chief engineer wants as much coal as can be put aboard. Delivery chute here has been retracted to bank up the coal neatly inside baffle boards.

the center area, 9,500 tons in the north area. Coal is southern egg bituminous mined in Kentucky, Virginia, Pennsylvania, and southern Ohio. The 2 x 6-in. size used was selected as resistant to freezeups in the piles and hoppers during the cold fall and spring weather.

Since most handling here is by a modern conveyor system, an observer, seeing coal handling from storage with a crawler clamshell crane is prone to ask, "Why not use reclaiming conveyors under all storage piles?" In answer, Jim Fulton points to the low pier which is suited to docking and servicing of all types and sizes of vessels. A reclaiming conveyor installation would include an almost impossible water problem.

A 38-B crane with 65-ft. boom and 1½-yd. Hayward clamshell bucket has proved unusually effective. It regularly puts up 300 tons of coal an hour (about 1¾ tons per bucketful) to the feeder hoppers—easily exceeding the intermittent demand for coal bunkering. Tonnage placed aboard a boat may vary from 50 to a maximum of 350 tons. Since the four feeder bins hold altogether about 440 tons heaped, the maximum demand can be handled by the 750-ton-per-hour capacity conveying equipment at top speed throughout a bunkering operation.

Feeders Deliver Coal

Reciprocating feeders under the four bins deliver coal to a 42-in. belt conveyor travelling at the rate of 450 fpm. A belt scale on the later inclined section of the conveyor automatically totals all coal tonnage passing that point. Weight of each separate fueling is registered in the control house near the top of the loading tower. Coal is discharged by this conveyor to a second conveyor which takes it to the loading tower. The second conveyor is hinged at the discharge point, the head-pulley riding in a vertical slot in the loading tower. This arrangement permits a vertical range of discharge over the head pulley of about 22 feet, which, in connection with chutes, enables fueling of bunkers at any height required by boats operating on the Great Lakes. A hinged steel chute capable of telescoping from 32 to 50 feet provides further flexibility.

The entire fueling operation — except, of course, operation of the clamshell crane—is controlled by the loading tower operator from his enclosed control room, located at the edge of the dock 60 feet above water level,

where he has an excellent view of the vessel and most of the bunkering plant. Weight of fuel, as indicated by the remote recorder in the control room, is furnished the deck man by the control tower operator. The deck man makes out the fueling ticket and has it signed by one of the vessel officials.

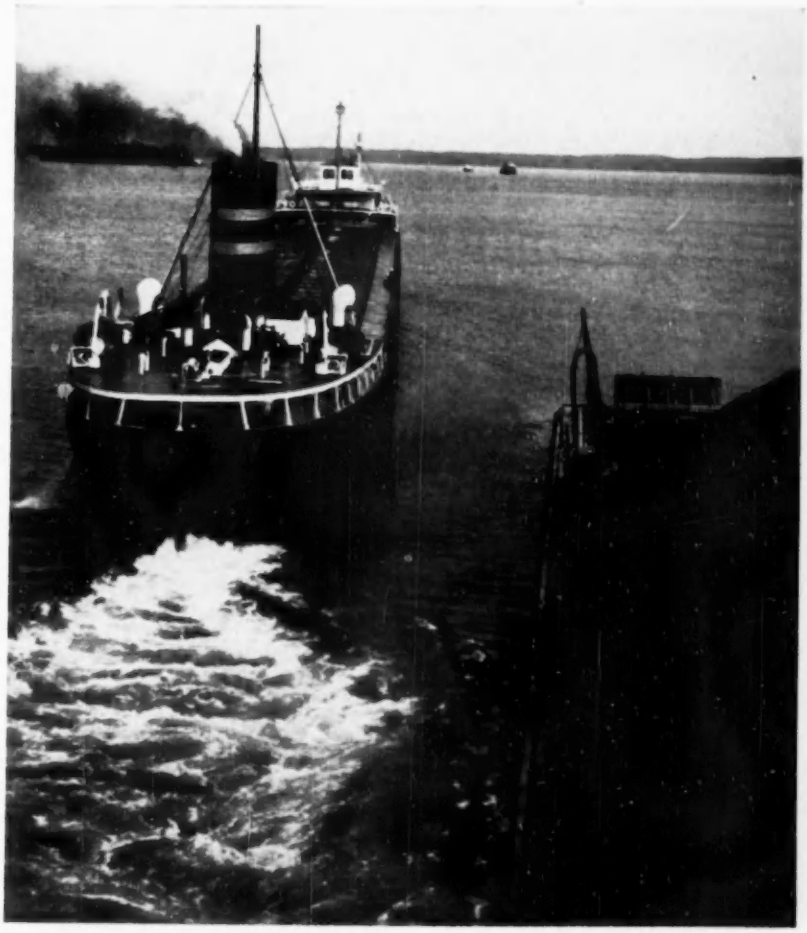
The station also services oil burning vessels with "Bunker C" (#6 residual) oil. Two 40 x 80-ft. tanks give total storage capacity of about 3.5 million gallons of oil. At all times, oil is heated by a 200-hp boiler which also provides steam to operate a pump which keeps oil circulating in cold weather in a closed circuit pipeline around the edge of the dock. Three delivery points on this pipeline give fueling flexibility. Capacity of the oil delivery system is 1600 gpm.

The all-bolted conveyor structures for the coal handling system designed by North Western-Hanna were erected by contractor R. C. Buck, Inc., from sections fabricated by Zalk-Josephs Co. Goodyear belts travel on Link-Belt idlers. Merrick Scale Co. supplied the Weightometer device for continuously weighing coal delivered to vessels. Twin Disc clutches on conveyor drives smooth out starts and stops. Electrical equipment was supplied by General Electric and Cutler-Hammer companies. D-A lubricants are used for all equipment. Diesel fuel is Gulf. The plant is ready for operation 24 hours a day during the navigation season. A total of 12 men, three on each shift, work 11 hours a day five days a week on rotating shifts.

Lime Island, wholly owned by North Western-Hanna Fuel Co., is heavily wooded except for a cleared hillside near the dock. Here 12 families live the year-round in comfortable company-owned houses. The island's 27 children study under a schoolteacher provided by the State of Michigan, through primary grades. To attend high school, older children live with relatives on the mainland.

A county-owned dock on the mainland at Raber, Mich., three miles across the water, is easily reached in good weather for shopping and other trips by the launch "Lime Island." When the St. Marys river is filled with floe ice, however, residents may be confined to the island for several days or weeks. Superintendent Fulton says his "flock" sometimes gets very impatient during bad weather, but fortunately there have been no serious illnesses or emergencies.

Lime Island is known at North Western-Hanna as Dock 14, since the company operates 12 others as well as a similar number of retail yards, and 118 coal trucks, all within the states of Minnesota, Wisconsin, and Michigan. About four million tons of coal are handled each year in all operations. The Lime Island development, costing several hundred thousand dollars, is in line with North Western-Hanna policy of keeping up to date.



Ore carrier pulls away toward Soo locks with its coal bunker heaped. Below: Super Jim Fulton shows off his powerhouse-machine shop and oil storage tanks.

Company Officials

Operating headquarters of North Western-Hanna Fuel Company are in Duluth, Minn., with main offices in Minneapolis. Officials include Richard Relf, president and Board chairman; Martin Burke, Jr., executive vice-pres.; J. T. Crawford, vice president in charge of operations; B. C. Whaley, general superintendent, Lake Superior operations; R. W. Brodie, general superintendent, Lake Michigan operations; and R. H. Pearson, superintendent, Twin Cities operations.

Contracting Businesses Can Still Be Built

Harry W. Heisler and Lee Woods head one of California's most progressive crane and pipeline construction outfits.

by Ray Day

Heisler and Woods, a pair of ex-shovelrunners, started from scratch in one of America's most competitive territories and went on from there to build an outstanding construction enterprise.

AT 229 South Hoyt Avenue, in the city of El Monte, Calif., there lies a modest office and construction yard. The sign at the entrance reads "Heisler & Woods, Contractors." Outwardly, at least, it is a typical contractor's hangout. The few materials in the yard are stacked neatly, and what little idle equipment is around looks freshly painted and well kept. But aside from these pleasing first impressions, a prospective customer might see little to distinguish the place.

Yet, behind that commonplace exterior, one of the most unique crane and pipeline construction businesses has been built in the heart of what many contractors believe is America's most competitive territory.

For Harry W. Heisler and Lee H. Woods are a pair of ex-shovelrunners. The policies behind their 1953-model business were laid back in the late 1920's and early 1930's, when the emphasis was on good craftsmanship. What Heisler and Woods cultivated for years was an attitude. That is all they have today, aside from a mushrooming construction business, but the parallel between 1953 and their early years is strikingly similar.

In the late 1920's, the Bucyrus-Erie Western Sales Office often recommended for the tough production installations Shovelrunner Harry Heisler. Lee Woods had the same status with Lima's western sales officials.

Move Seabiscuit

Today the two old shovelrunners are getting the same tough assignments. When a bronze and marble statue of Seabiscuit, insured for $100,000 had to be moved at Santa Anita Park recently, Heisler & Woods were called in. And it is no longer classified information that the firm's Bucyrus-Erie 22-B transit crane set a ground-detonated nuclear device exploded by the Atomic Energy Commission at Frenchman Flats, Nev. The nuclear device was handled no more carefully—or safely—than Seabiscuit's statue.

The Heisler & Woods story is an emphatic answer to people who doubt that modern contracting businesses can be built from a small start. Both men have proved that it can be done. It took Harry Heisler eight years from the time he obtained his contractor's license in 1936 before he bought his first machine in 1944. Lee Woods had exactly the same uphill battle, and when he joined Heisler in 1948 all he had to bring in was a Link Belt Speeder HC-70 truck crane.

It was inevitable that these two men should meet, join forces, and pull together.

Both Heisler and Woods have strikingly similar backgrounds. Starting as an oiler and then moving on to operator on larger and larger machines, Harry Heisler worked on many of the important jobs done in the west 25

years ago. His experience includes the operation of an old Bucyrus-Erie 30-B steamer, and a 50-B Diesel rig for Red River Lumber Co. He operated for Mittry Bros. and the Ray Lewis Co. At San Gabriel Dam No. 2 he operated a then-new Bucyrus-Erie 120-B power shovel for West Slope Construction Co. An old friend of dam builder Harvey Slocum, he also operated a 120-B at Grand Coulee Dam, and moved from there to Hansen Dam in southern California for Guy F. Atkinson Co.

Lee Woods came to California in 1926, and settled near Westwood. For many years he was with Consolidated Rock Products Co., operating equipment. He also worked for the City of Los Angeles, for United Concrete Pipe Corp., and did some operating on the Colorado River Aqueduct.

In 1947, shortly after Heisler had gotten a similar idea, Woods went into business for himself. Shortly thereafter, he joined forces with Heisler to set up the present firm. At that time, Heisler was in business with M. C. Hopper, also an old shovelrunner, who sold his interests in the firm in 1950, leaving Heisler & Woods in charge of the business. Until his departure, the firm operated as Heisler, Hopper & Woods.

Own Six Cranes

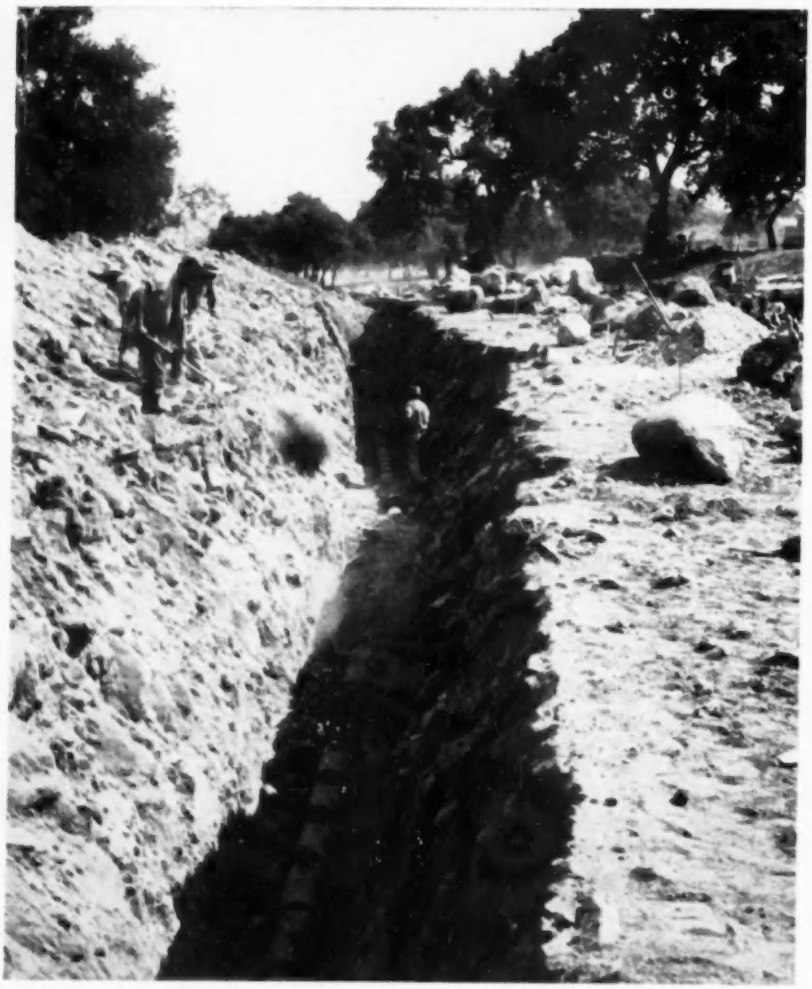
The present roster of Heisler & Woods equipment is a far cry from the lean early days when the two men were forming their businesses. The firm now owns six truck cranes, for example, including a Bucyrus-Erie 22-B transit crane, a Model 304 Koehring, three Model 414 Lorain MotoCranes, and one Model 416 Lorain. There are three backdiggers on the list, which are used for the firm's all-important pipeline work. These machines are all Bucyrus-Erie, and include one Model 22-B, one 15-B Diesel and one 15-B gasoline powered rig.

The firm owns a pair of Caterpillar tractors: A D6 and D4. Both were purchased less than three years ago. Other equipment includes a lowboy trailer, two Ford and one Chevrolet trucks, a Wagner Scoopmobile, a Jaeger 125-cfm compressor, a Buckeye 407 trench excavator, and four pumps ranging from two to six inches in size.

The purchase of this equipment, in fact, reflects quite accurately the growth of Heisler & Woods' business. Operating in his own name, Harry Heisler had purchased a Bucyrus-Erie 22-B transit crane in 1947 to help out the Koehring 601 machine he started

Bucyrus-Erie 22-B crawler and Koehring 304 truck crane equipped with 2,000-lb. steel skullcracker balls break oversize boulders on Livingston Rock Co. job.

These big boulders had to be broken and hauled away. Bucyrus-Erie 15-B dragshovel typifies complete line of equipment Heisler and Woods utilize on jobs.



Fragile clay pipe lies in tough boulder formation on housing project. Labor gang will put in enough fine material to protect pipe from mechanical backfill.

with. After he and Woods joined forces, equipment was added as rapidly as the company expanded.

In 1948 the first Bucyrus-Erie 15-B dragshovel and a Lorain crane were purchased new. In 1949 two Lorains were added. 1951 was the year when the 22-B dragshovel, crawler mounted and equipped with shovel and dragline attachments, was purchased. The Caterpillar D6 was purchased that year.

1952 saw the purchase of another 15-B and two Lorains. By 1953 the company's pipeline work had expanded to such proportions that the purchase of the Buckeye trench excavator was justified. The Scoopmobile and other equipment was picked up as soon as business expanded to the point where these purchases were justified.

Hard Work — Long Hours

According to both Heisler and Woods, building a construction business is not as impossible an undertaking as it might seem before a man makes the big jump from outside employment to self employment. Many of the well established contractors who formerly used both men as shovel-runners were the first to give them encouragement, help, and subcontract jobs. In fact, some of the warmest friendships either man has made over the years are traceable back to the time when heavy mechanical construction was in its infancy on the west coast.

Unquestionably the big factor in Heisler and Woods' success is their tenacious retention of the hard-work, long-hour beliefs which have long since passed into oblivion. When Livingston Rock Co. needed some oversize boulders broken in a hurry recently, and it was obvious that it would require more than five machine days a week to do the job, both men said without hesitation, "That's no problem. We'll work Saturday and Sunday, or at night, if we have to."

Both men make every possible effort to hold good operators, and all the men who have been on the payroll from the time the various machines were new are noted for their general ability, for the care they give their machines, and for their skill in making decisions where good judgment is concerned. One of the backhoe operators is so skilled and hard working that his service was demanded personally by Livingston Rock's superintendent when the boulder cracking job came up. The superintendent of a California State bank protection job along the Pacific

Ocean recently asked his head office to get Heisler & Woods on the job regardless of State bidding laws. Fortunately for all concerned, Heisler & Woods' bid was low.

Heisler & Woods have allowed their business to grow along two lines, which reflect in considerable measure previous skills of each man. The firm's business is composed partly of contracting work, with special emphasis on pipeline construction of all kinds. The second half of the business consists of crane work. At the present time the firm rents cranes regularly to Consolidated Western Steel Corp., Apex Steel Co., and many of the other steel manufacturing firms in the Greater Los Angeles area.

In connection with the crane business, the firm also does considerable clamshell work with its machines, sets gasoline tanks, pours concrete for buildings, and currently is setting forms for a Los Angeles River flood control project being done for the Corps of Engineers by A. Teichert & Sons, of Sacramento. The crane rental division also furnished the machines to raise precast tilt-up concrete slabs at 29 Palms, Calif., where Morrison-Knudsen Co., Inc. and Ford J. Twaits are currently doing a huge Navy construction program. The crane rental division also cooperates with the construction end by doing considerable demolition work. Recently razed were the Monrovia City Hall, the Alhambra fire station, the Columbia Street School in El Monte, and other structures of that nature. Cranes belonging to the firm are now taking up two bridges and 3800 square yards of old pavement on Rosemead Boulevard, south of Pasadena.

Work Seven-Day Week

A Koehring 304 truck crane and a Bucyrus-Erie 22-B crawler machine are currently at work on the seven-day-per-week job at the Livingston Rock Co. commercial pit, breaking up oversize boulders which have accumulated through the years, and which are too big to pass through the primary jaw crusher of the reduction plant. The machines are using 2,000-lb. steel skull-cracker balls for this operation, and are breaking the rock down successfully within rather rigid economic limits, so that the material can be used profitably in a forthcoming rip-rap job.

Heisler & Woods crane equipment was also used when Livingston Rock

Deep pipeline work is becoming a Heisler & Woods specialty. Crews were going more than 30 feet deep when picture was taken. Shoring follows ditcher.

Co. set up a new production plant at this pit.

The really difficult jobs, however, where considerable money can be lost if things go wrong, is the responsibility of the construction end of the business. In practically every year since the company joined forces in 1948, the firm has done some construction job which gave everyone considerable concern until it was finished.

One of the notable jobs these men still remember was an assignment for the Irrigation District at Encinitas, Calif., back in the summer of 1950. The irrigation district needed a 22,000 linear foot installation of 30-in. concrete and concrete cylinder pipe, and the need was urgent. In fact, the time limit was so tight that Heisler & Woods turned in a 60-day performance. The pipe ditch ranged from six to seven feet deep, and passed across all types of terrain common to that vicinity: Level, uphill, and downhill. Part of the line lay across some bean fields, which were almost sure to give trouble if underground water was found.

In their typical fashion, the two partners tooled up heavily to get the work done. A Parsons trench digger was rented to add speed in some of the easier trench sections. Two Bucyrus-Erie dragshovels were brought in for harder formations like gravel and cemented sand. The 22-B transit crane was moved down to handle pipe on all the job—even in the hilly sections—and an experienced operator was brought along. His assignment exemplifies the policy of the company in that regard, because with this man on the job, the machine was sure to be in operating order every day.

One of the things that operator boasts of, incidentally, is the fact that no pipelaying crew has ever waited on his machine when they are ready for a new section. While they are busy with finegrading, checking, and final alignment of the previous pipe section, he and his ground crew are busy picking up the next piece, swinging it over close to the crew, and standing ready the instant the signal is given for this material.

Construction of water reservoir at Arcadia provided rental job for a Heisler & Woods Bucyrus-Erie 15-B crane, rigged as dragline with B-E bucket.

Pipe Laid Rapidly

Trouble developed early on this project, when the excavated material on both sides of the ditch created sufficient surface weight to cause caving. The condition was aggravated further by the presence of ground water through the bean field. It was obvious immediately that pipeline work would have to begin and end with all phases completed within a very short lineal distance. A D6 tractor with bulldozer blade was brought in to shove the spoil pile away from the ditch line as quickly as it was dug. Pipe was laid so rapidly in this manner that in many cases it was finished before the trench could cave. It was finished for the irrigation district's use within the specified time limit. This line will carry domestic and irrigation water from a dam down to farms and houses in the lands governed by the district.

Probably the worst job the firm has ever handled was finished in May of 1953. It was a subcontract from Heisler's old employers at Hansen Dam, Guy F. Atkinson Co., for construction of a storm drain in connection with drainage on the west approach of a new highway bridge across the Colorado Street arroyo in Pasadena.

This job was about 2,000 feet long, and included 1,700 feet of 48-in. concrete pipeline, 154 feet of 54-in. and approximately 100 feet of 36-in. line. What made the job so difficult was the fact that ditch depths ranged up to 34

Storm drain contract proved tough. While 22-B dragshovel cut trench another 22-B transit crane drove sheet pile.

feet, with 8-ft. bottom width and 9-ft. top width. It was necessary in this case, too, to get the job finished rapidly so Atkinson could proceed with other work in connection with the structure.

Heisler & Woods moved in during the late fall of 1952, expecting to be finished with the job in a few months. Halfway through the project, however, an underground lake of pocketed water was intercepted by the trench excavation. Water poured in in quantities up to 1,200 gpm. In less time than it takes to tell, the ditch was dangerously flooded.

Before that situation was under control, Heisler & Woods had to drive 200 linear feet of trench full of solid steel sheet piling on both sides, brace the sheeting heavily, unwater the large-diameter pumps, and install the pipe the hard way. This single section delayed the job for almost 2½ months before it was successfully licked. Later on, all the steel sheet piling was recovered, and the remainder of the job went in without further mishap.

Other big jobs the firm has done recently include a 30,000 foot section of 8 to 10-in. sewer line for the City of Monrovia. This job was laid through a rock and sand formation, where big boulders up to 10 tons in size were found. An interesting part of that job was the difficulty of picking up these boulders and hauling them to waste dumps after they had been broken up.

At the Santa Anita Highlands housing tract, a sewer job 22,000 feet long has also been finished. The trench for this job varied from 5 to 20 feet deep, and at one point, the line passed beneath the main 12-ft. ID Metropolitan Water District Aqueduct leading to Pasadena. This gave the firm considerable experience in addition to that it had already received from working with utilities on other municipal projects.

In many other locations, too, interesting work has been done by Heisler & Woods. Water sewers, storm drains, and other lines of various types have been installed within the 80-mile radius of their usual territory. An 11,000-ft. water line was laid for Valley Water Co. of La Canada, Arcadia, Calif., needed a 15,000-ft. job in 1951, and a 4,000-ft. job was done at La Habra. A cast iron water line was laid in Alhambra, and a 48-in. siphon was placed for A. Teichert & Sons and

Continued on page 57

Power Firm Builds Mexican Plant

by Mary Saint Albans

Empresa de Construcciones Generales, S.A., constructs a 45,000 kw plant for Mexican Light & Power Co. in the Necaxa region, near Mexico's first large electric light plant.

ABOUT three hours from Mexico City by car on the highway which leads west to the Poza Rica oil center and the Gulf of Mexico, one crosses the state line from Hidalgo into Puebla. A few miles farther, and motorists can look far down to the right to see the Necaxa flowing at the bottom of a forested valley. Very soon we get a glimpse of Necaxa, Mexico's first big electric light plant, built 50 years ago.

It was constructed by the Mexican Light & Power Co., a private concern. This plant now produces 115,000 kw. Nearby the company's plant at Tepexic produces 45,000 kw. Four other big plants—Lerma (79,945 kw), Lecheria

Looking down at 45,000 kw Patla plant construction on Necaxa River. Note almost vertical descent of cable car track.

(66,000 kw), Tacubaya (30,900 kw), and Nonoalco (85,000 kw)—are owned and operated by this company in addition to several smaller plants. The Mexican Light & Power Co. is also interconnected with the Miguel Aleman hydroelectric system now being completed in the states of Michoacan and Mexico.

The plant now under construction at Patla is the third of the Necaxa river plants. At Tepexic, a 3.9 mile long tunnel, now being lined with concrete, begins. It swings east to Patla to carry water to three 15,000 kw Allis-Chalmers turbine generators.

The new power system tunnel, diversion dam, plant and boosting station is being constructed by EGGSA, Expresa de Construcciones Generales, S.A. Work began in January 1951, will be completed in April 1954. The cost is approximately $4½ million.

Terrain which appears more perpendicular than horizontal and rainfall which adds up to 20 feet and more during the summer season are formidable obstacles to construction progress.

The cross country motorist passes Dos Caminos, a corner store where EGGSA's road to the main camp and the plant far below begins. The camp lies nearly 4½ miles inland, the plant site some 3 miles farther via switchbacking downhill route. Over this road early one morning, Mexican engineer Jose Sillar Franco, general manager, drove this reporter to the Patla work center.

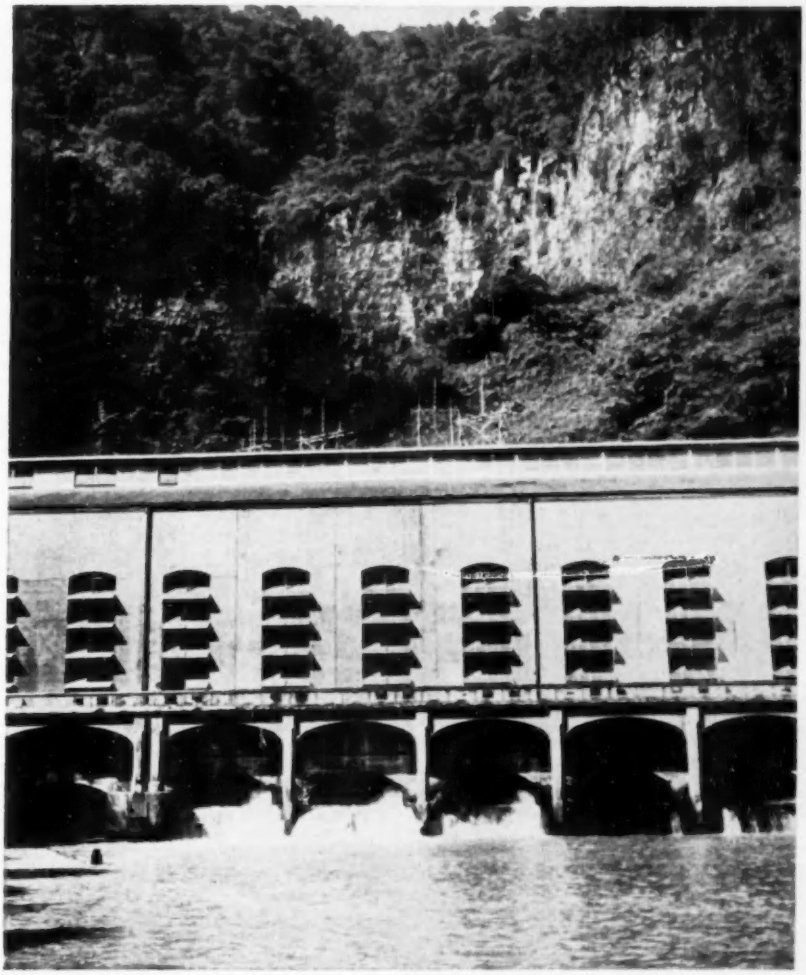
Encounter Heavy Rain

It had rained heavily the night before and already Chevrolet dump trucks were pouring loads of gravel on mushy, slippery sections. Throughout the year, says the engineer, the job of gravel dumping and road grading never ceases. We had already passed an Allis-Chalmers motor grader and soon came across two International TD24's with Bucyrus-Erie angledozers shoving rock and thick mud over the mountain's edge.

Frequently when downpours cease, heavy mists follow, lasting for hours, sometimes days. A truck driver is lucky if he can distinguish clearly his machine's hood.

Despite slimy mud and pools of water around the Patla construction site, there was much activity. A Rex Pumpcrete shot cement through piping which carried it over a skeleton structure and emptied into wooden forms. Close by, an Ingraham batcher equip-

How would you like this view on your job? This International TD24 equipped with a Bucyrus-Erie angle dozer is working aggregate pile at El Pozo.



Mexico's oldest electric light plant was completed in 1903. Constructed by Mexican Light & Power Co., the Necaxa river plant now produces 115,000 kw.

Bucyrus-Erie 22-B dragshovel excavates hill base to make space for plant walls. Material was loaded on Euclid trucks and then dumped at boosting station.

ped with two Howe scales, poured into a 28S Rex Mixer to fill Chevrolet dump trucks. Skirting plant construction, these climbed a slope to dump into a pipe which descended to unload in the forms which were making the pressure pipe ramp. The big water inlets descending together on the 52° ramp incline will separate and enter the building.

Two compressors, Gardner Denver and Chicago Pneumatic, each with a D8800 Caterpillar engine, sent power to rock tools drilling above. A ¾-yd. Bucyrus-Erie 22-B dragshovel was excavating a hill base to make space for plant walls. It loaded into two Euclid trucks. The material was then dumped on the boosting station site to level sloping ground.

Hugging the mountain, we returned a short distance up switchbacking road to crosstunnel B. This tunnel had been dug 100 yards to meet the big tunnel. Two hundred forty-five feet straight up was the edge of a cliff from which all machinery had been lowered via winch and shovel.

We finally got on the main road again to reach El Pozo. Here is located the surge tank, the house of valves where the three pipes emerge from the tunnel to begin their downhill journey to the plant, Tunnel Crosscut B, and the big Diamond Iron Works aggregate plant.

Welder found work on surge tank. It's here 3 pipes from tunnel emerge and swing down to plant, Tunnel Crosscut B, and Diamond Iron Works aggregate plant.

Cable Takes Men Down

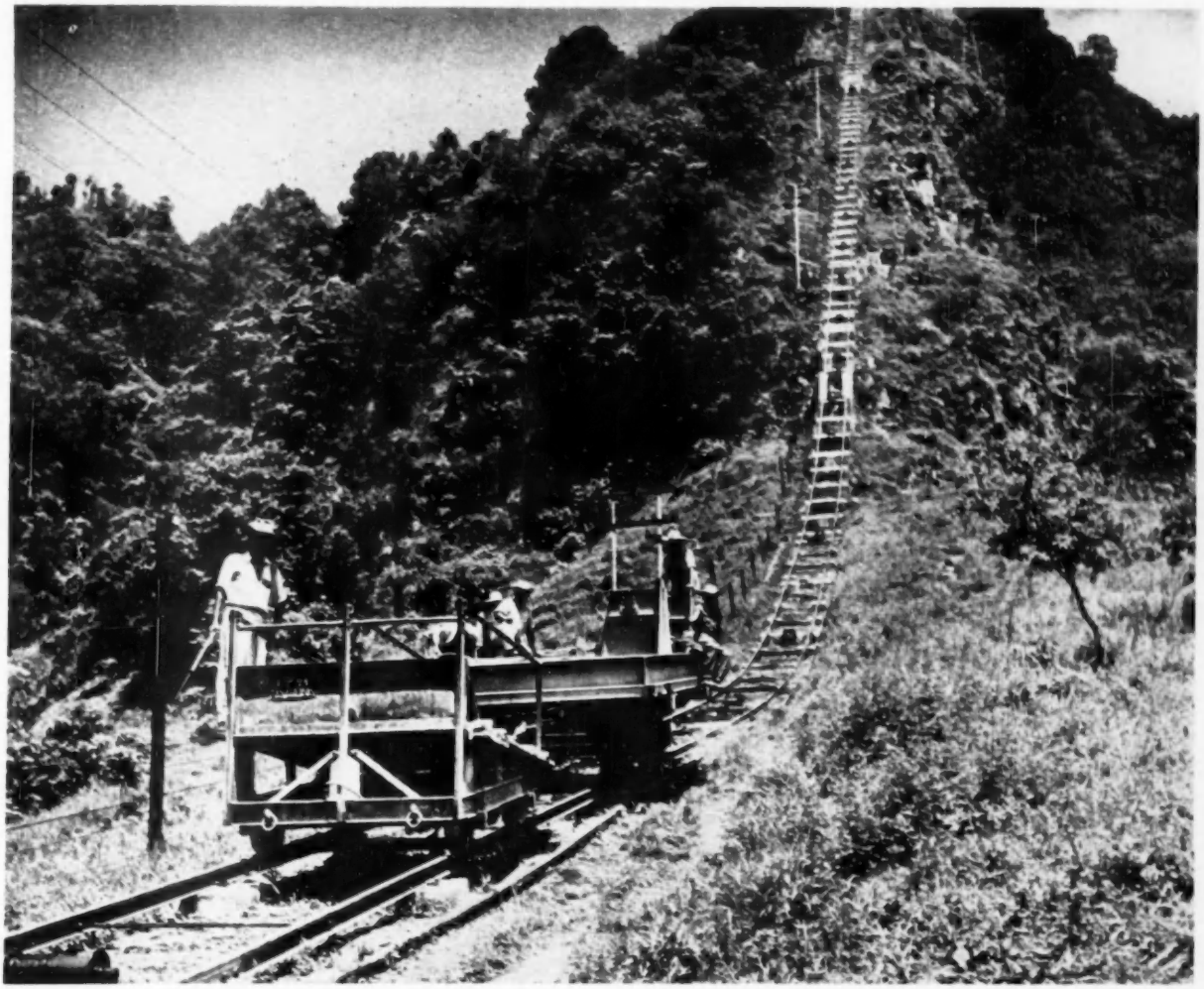
Here too is the cable which carries material and men down the incline. From below, two-thirds of the distance down, we could see the big plant and river. This incline and ramp had been concreted 328 feet down by Rex Pumpcrete, and 246 feet up from the bottom by Rex Pumpcrete. The middle section had been concreted via the cable car which carried underneath the open passenger box, a receptacle for transporting and dumping concrete.

We entered the crosscut tunnel, walked to the main tunnel and turned right. The tunnel was dug by five French "Sotim" jumbos each equipped with Chicago Pneumatic rock tools. Five Eimco 21 muckers carried material outside. The tunnel was attacked from these points: Entrance, exit and crosstunnels A, B, and C. Five carloads of dynamite were used each month. Inside the tunnel, 60% dry gelatine was chosen; outside, 40% extra. All dynamite is made-in-Mexico Dupont.

Rock encountered included andesite, shell, limestone, basalt, and conglomerate. Engineer Siller is justly proud of the tunnel record. The tunnel dug from Tepexic met the one coming west from crosscut B, about 2.8 miles in distance, with only 4.7-in. of error. The section meeting between crosscut B and crosscut C, a shorter distance, had an error of only 0.71 in.

The tunnel lining job was scheduled to begin in two weeks in two fronts. The material would be carried by Whitcomb trains (three) and LLD trains (eight) into the tunnel to be transferred by conveyor belts (one, 16.4 feet long, one, 29½ feet long) into German mixers. These would pour into Presswells below which would shoot it into the tunnel forms. Two Blaw-Knox tunnel trains were to operate; one in the Patla and one in the Tepexic section.

Against the cliff stood a big Diamond Iron Works aggregate plant equipped with Rex chains and sprockets and Goodrich rubber throughout.



This roller coaster-like cable car line routes all machinery to Tepexic site. Two cable cars are available for the descent.

Work proceeds deftly at crosstunnel B. All machinery was lowered here via winch and shovel over edge of 400-ft. cliff.

Caterpillar D7 dozer pushes rock through rushing Necaxa River. Rock later was utilized for building retaining walls.

Allis-Chalmers motor grader works mushy road section. Road work was daily task.

The original rubber bucket belt had been eliminated and a larger one ordered, an inch thick instead of five-eighths, a foot and a half wide instead of a foot. As needed through the month, the plant produced about 10,000 tons of material.

This plant, as well as a duplicate one in Tepexic, have laboratories attached, and extreme care is used in testing. The engineer declared the concrete always met specifications.

Across the road, an Ingraham batcher poured into a 28S Rex mixer on a lower level. The latter poured into cars pulled by the small locomotives which took concrete in to finish the house of valves. Above the aggregate plant around a bend, we ascended to watch a Bucyrus-Erie 22-B excavator feed gravel into trucks.

From El Pozo it takes about an hour and a half to reach Tepexic, the tunnel intake and diversion dam. There are two cable cars to descend, the first, ½-mile long on a 45% grade, the second, ¾-mile long on a variable grade. Waiting for the car and the trip takes time. On the second stretch, we could discern far below and apparently straight down the Tepexic plant and boosting station and farther away, the new construction work.

Climbing over the diversion dam frame, we entered the tunnel (already completed for a short distance). Below in the Necaxa River, a Caterpillar D7 was pushing great piles of rock through the rushing water. Workmen, standing in shallower water at the edge of the river, placed the stones on the bank where other workmen grabbed them to use for building retaining walls. A Rex 11S mixer was pouring near by and trucks continually arrived with loads of material from the aggregate plant two blocks away.

This plant had been enlarged with a Telesmith crusher and a Cedarapids hammermill. This was done to produce the 20% more sand needed here. At El Pozo the river furnishes part of the sand and the plant easily produces the rest. Here an Ingraham batcher fed into a 16S Rex mixer.

Near the aggregates plant a Caterpillar Hystaway shovel mounted on a Cat D7 cut into an extensive aggregate stock pile to fill the trucks which rolled down to the diversion dam project.

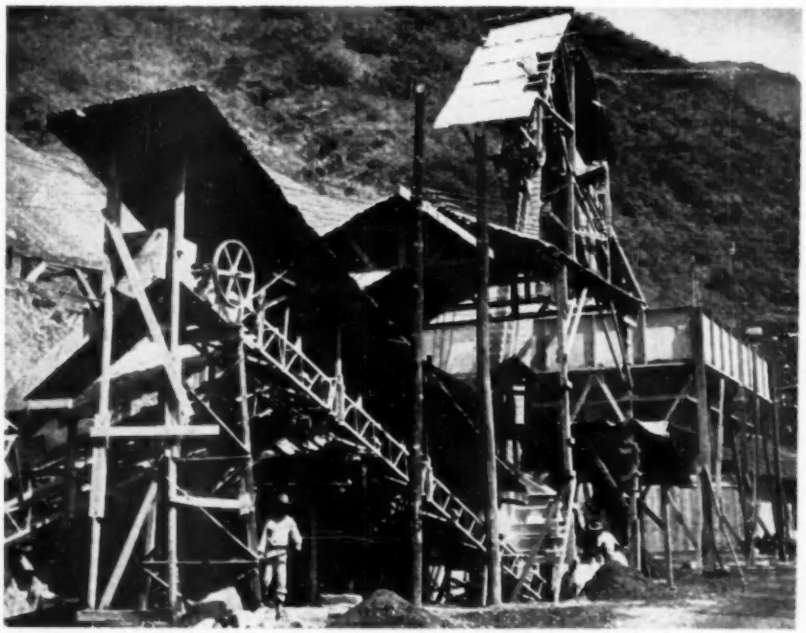
1,000 Indians On Job

With us on this trip was Jesus Farfan, chief section engineer. There are three chief section engineers, three assistants. Besides the supervisory employees and skilled labor, there are 1,000 Totonac Indians on the job. They are good workers but not too bright and above all, exceedingly superstitious.

Excavations for the roads amount to 311,443 cubic yards; for the tunnel, 143,462 cubic yards; pressure pipe incline and ramp to enter plant, 38,828 cubic yards. Plant foundations add on another 26,202 cubic yards; crosscuts for tunnel, 10,936 cubic yards; surge tank, 6,204 cubic yards; intake and diversion dam, 28,351 cubic yards.

Concrete will total 10,936 cubic yards in diversion dam and intake; 63,428 cubic yards in tunnel; 8,475 cubic yards in surge tank base and railway ramp; 10,936 cubic yards, plant and substation.

Working equipment includes all prominent makes: Bucyrus-Erie, International, Caterpillar, Blaw Knox, Allis-Chalmers, Ingraham, Chicago Pneumatic, Gardner-Denver, Diamond, Rex, Goodrich, Jaeger, Fairbanks-Morse, Chevrolet, Euclid and foreign makes.



Diamond Iron Works aggregate plant at El Pozo produced 10,000 tons of material.

In dead end spots such as this, two-way steering proves its worth. No switching, no backing . . . straight in, swing the seat, and straight out. The "Shuttle" has the quickest "turn round" of any Dumper.

Cut haulage costs with a 'SHUTTLE'

- It's tough
- It goes places
- It's a sure tip

THE AVELING-BARFORD SHUTTLE DUMPER 4½ cu. yd. CAPACITY

Engineered for heavy duty, the time-tested and performance proved Aveling-Barford 4½ cubic yard Diesel Shuttle Dumper has all the features that make for low cost haulage over medium and short runs.

It has plenty of power, four speeds in reverse as well as forward, patent two-way steering — the operator can always face direction of travel, instantaneous tip — gravity or power assisted, seat operated differential lock, and many other valuable refinements.

Easy to handle and easy to ride it has remarkable stability over rough ground permitting the maximum speed that job conditions allow. In quarries, mine working, on public works and contracts all over the World, the Aveling-Barford Shuttle Dumper is invariably first choice for working with medium size excavators.

Get to know more of this British built Dumper . . . write for Folders Nos. 1529 and 1620.

WORLD-WIDE SPARES AND SERVICE COVERAGE

AVELING-BARFORD LIMITED
GRANTHAM ENGLAND

Big

ESTABLISHING MOUNTAIN-TOP BASE, a helicopter and a TD-24 put men, machinery and supplies on mile-high pass as first step in efforts to build road down to meet section coming up from each side. TD-24 pulled yarder, winch, and compressor into pass after bitter 7-day fight.

1 RAISING KENNEY DAM to fill the Grand Canyon of the Nechako River, workers sluice down some of the 3.8 million cubic yards of earth and rock it will eventually contain. Dam will form a reservoir with twice the capacity of Grand Coulee. TD-24 in foreground strips blasted rock from canyon wall abutment.

2 HEADING OPERATIONS at Kenney Dam are (left to right) Alcan Resident Engineer Harry Jomini; General Superintendent "Hak" Nielsen and Project Manager Jack Bremner, both of Mannix, Ltd., sub-contractor for Morrison-Knudsen Company of Canada, Ltd. 110 miles west, dammed-up waters will be diverted through mountains and dropped a half mile to run turbines in sea-level powerhouse.

3 DRIVING TEN-MILE TUNNEL through mountain is done from four headings. Here, half a mile above ocean-level valley, aerial tramway has delivered TD-24 to tunnel portal for working debris down mountain. 2,600 feet below, eight-story powerhouse inside mountain is being mucked out by a TD-24 and a TD-9.

Red TD 24 Pioneers New Frontier

59 International TD-24s spearhead largest integrated engineering program in history for Alcan (Aluminum Company of Canada, Ltd.) on Project British Columbia

A fleet of 59 hard-hitting International TD-24s is blazing a new frontier across 5,000 square miles of wilderness in British Columbia.

Twenty-four hours a day, they're on the go for Morrison-Knudsen Company of Canada, Ltd., prime contractor for most of the giant development that includes:

Building the largest sloping clay core dam in the world

Driving a subway-size tunnel ten miles through a mountain

Blasting out an eight-story powerhouse two blocks long inside solid rock

Erecting a transmission line fifty miles long over a jagged mountain range

Raising the world's largest aluminum smelter and a new port city at Kitimat where 50,000 people may eventually live and work.

A. O. Strandberg, project manager for Morrison-Knudsen, says:

"These TD-24s are doing the impossible. We never thought any tractor could go where these tractors are working now. They have the weight, they have the balance, and they have the power to get the job done."

And here's what superintendents on the firing line say:

Bill Richards: *"They're pushing boulders uphill we had to dynamite in the old days."*

Herb Wilkinson: *"I wouldn't believe where they'd go until I got them on my crew."*

John Hutton: *"They're doin' work up here they were never built for but they're doin' it just the same."*

Your International Industrial Distributor can give you the facts and figures on the TD-24. See him. You'll be a TD-24 man from then on in!

INTERNATIONAL HARVESTER COMPANY • CHICAGO 1, ILL.

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POWER THAT PAYS

4 **INSPECTING MOUNTAIN TOP OPERATIONS** at Kemano, headquarters for construction of powerhouse, tunnels and transmission line are (left to right) A. O. Strandberg, Project Manager for Morrison-Knudsen; F. T. Matthias, Alcan Assistant Project Manager, and Walter Abrahamson, Alcan Assistant Resident Engineer at Kemano.

5 **LINKING UP POWER TRANSMISSION LINE ROAD,** a pair of TD-24s doze toward each other through blasted rock. Across 50 miles of rugged terrain like this, a mountain-anchored powerline will be built to flash abundant electricity from mountain powerhouse to smelter at tidewater.

6 **NEW LAND IS MADE IN OCEAN INLET** by dredge which deepens anchorage for ocean shipping at the same time. H. M. Whiting (right), Project Manager for Kitimat Constructors, Ltd., and a superintendent study progress. Part of this 70 acres of new land will become site of new aluminum smelter. Town which may eventually become city of 50,000 will be built across the bay.

News from the Field

Broken lines indicate location of new Baytown-La Porte tunnel beneath Houston ship channel in Texas. Tunnel is one of world's largest underwater tubes.

Open Underwater Tube To Texas Traffic

Texas' new multi-million dollar tunnel between Baytown and La Porte was opened September 22.

Costing $10,013,149 the new tunnel is one of the world's largest underwater tubes. The Texas Highway Department, the Federal Government, and Harris County shared the expense of the tunnel; with the Highway Department putting up $4,055,649; matched by $3,057,500 in Federal Aid, and $2,900,000 from Harris County.

The tunnel proper is 3,009 feet in length from portal to portal, with open approaches 551 feet long on each end. The overall length of the project, including approaches, is seven miles.

A unique feature of the construction is a three-level traffic exchange on the La Porte side.

The roadway through the tunnel measures 22 feet from curb to curb, with a minimum vertical clearance of 14 feet at the curb line. The exit lanes widen from 11 to 23 feet beyond the portals to provide a second line of traffic for slow-moving vehicles.

The one-half inch steel tunnel tube is 35 feet in diameter and acts as a form for the three feet of concrete which is the tunnel proper. The steel tube sections were fabricated at Orange, towed to the site, sunk into place in a dredged trench and then finished.

Six of the nine tube sections are 300 feet long and the three center sections, each having been constructed to fit the alignment curve, are 252 feet in length. The bottom of the tunnel is 89 feet below the surface of the water at mean tide.

The sections were sunk end-to-end, bolted together, then made water-tight with a special type of concrete. The empty structural steel in the tubes weighed 4½ thousand tons.

A six story building housing the controls is located on the Baytown site. It has three stories underground and three above the ground level which house the ventilation, pumping system and, other operating devices for controlling the tunnel.

Giant blowers force air through the tunnel, providing proper ventilation and are capable of completely changing the air every two minutes. A carbon monoxide detector in the tunnel warns the control tower operator if the air becomes impure.

Taking almost four years to complete, the new tube will replace the Morgan's Point Ferry at this crossing, which was first opened in 1933.

Brown & Root, Inc., Houston engineers and contractors, held the contract to build the tube proper, while Farnsworth & Chambers Co., Inc., also of Houston, held the contract for finishing the tunnel. Both firms shared in the approach road contracts.

Initial Contract Awarded For Maine Road Extension

First major contract for construction work on the $55 million extension of the Maine Turnpike from Portland to Augusta was awarded Sept. 17 by the Maine Turnpike Authority, with work expected to start in two weeks.

H. E. Sargent, Inc., of Stillwater, was the successful bidder with a figure of $498,626 for the grading and drainage of 4.962 miles to start at Route 26 in Gray.

W. B. Getchell, authority executive director, said the initial bid was somewhat below engineers' estimates of costs. He noted there was a spread of $260,000 between the highest and lowest bidders for the five-mile stretch.

Getchell announced that bids for other sections of the extension would be opened in two or three weeks, with the authority pushing construction for its opening target date in 1955. Plans are to open the Portland-to-Lewiston link sometime next year. Provided weather conditions are favorable, the work will be carried on throughout the winter.

Revenue bonds previously were marketed to finance the 66-mile extension of the Maine Turnpike, which now runs 45 miles between Kittery and Portland.

Ehrbar Opens Poughkeepsie Branch Office

The recently completed Poughkeepsie branch of Edward Ehrbar, Inc., was formally opened in October. The new building, located on South Road—Route 9, features integrated shop, parts, and showroom facilities.

The new Ehrbar Poughkeepsie branch will handle sales and service on the following lines of equipment—International Diesel tractors, bulldozers and scrapers; Hough Payloaders; Adams motor graders and Traveloaders; Barber-Greene asphalt finishers, ditchers and bucket loaders; Thew-Lorain shovels and cranes.

Management of the new Ehrbar branch will be under the direction of Harold E. Wildhack.

Announce AGC Nominees for Pres. and Vice-Pres.

The nomination of John MacLeod, president of Macco Corp., of Paramount, Calif., for president of The Associated General Contractors of

America in 1954 has been announced by the association. MacLeod's nomination was made by the A.G.C. Governing and Advisory Boards at the Edgewater Beach Hotel, Chicago, September 14-16. George C. Koss, president of the Koss Construction Co., of Des Moines, Iowa, was nominated for vice-president.

Voting will be by letter ballot in December and the installation of officers will be made at the conclusion of the A.G.C. annual convention in Los Angeles in March 1954. MacLeod is currently vice president. C. P. Street, McDevitt & Street Co., Charlotte, N. C., president of the association, will serve through the Los Angeles meeting. More than 350 members of the A.G.C. from all parts of the country attended the board meeting in Chicago.

MacLeod was born in Scotland in 1893. He has been president of his firm since 1929.

MacLeod's committee posts in the A.G.C. have been many. In addition to serving as vice president in 1953, he is a member of the executive and finance committees and the Construction Industry Manufacturers Association-A.G.C. joint cooperative committee.

The newly nominated vice president, Koss has been active in construction work since 1929. The Koss Construction Co., a prominent Iowa highway and airport contracting firm, built a number of major air bases in the midwest during the war. The company is one of the largest concrete pavers in the country. Koss was educated at Phillips Exeter Academy and Harvard University.

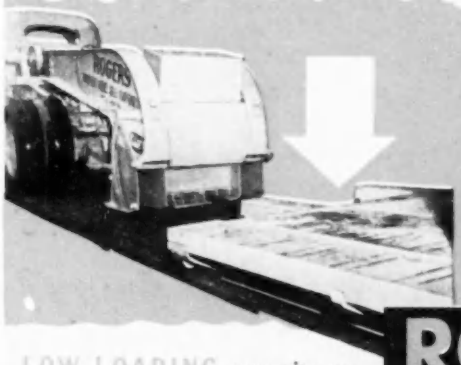
The Iowa contractor has served in many A.G.C. posts. At present he is chairman of the public relations committee, and a member of the executive committee. He also serves on the joint cooperative committee of the A.G.C. and the American Association of State Highway Officials and the joint cooperative committee of the A.G.C. and the Construction Industry Manufacturers Association. He is a director from District 6, representing North and South Dakota, Iowa, and Minnesota.

National Constructors Assoc. Will Meet Jan. 12-14

The National Constructors Association, composed of leading firms engaged in the design and construction of chemical plants, steel mills, and petroleum refineries will hold its annual meeting on January 12-14 at the Hotel Commodore, New York City.

The Association's safety and foreign committees will meet on January 12, and the labor and executive committee

"Get Down to Business"



TO A LOW LOADING DECK HEIGHT OF ONLY 16" WITH THE VERSATILE TYPE "TPG"...

ROGERS POWER LIFT DETACHABLE GOOSENECK TRAILER

PATENTS PENDING

LOW LOADING permits an easier, faster, more profitable operation in hauling equipment to and from the job.

Shovel "walks" up low deck over a minimum of blocking and rampage. *There is no stress or strain applied to the frame or gooseneck.* No blocking required under frame.

For your best buy in a multi-purpose, heavy duty trailer, investigate this versatile unit. It incorporates every desirable "job-proved" feature originated by Rogers.

CAPACITIES: 15, 20, 25, 30, 35, 40, 50, 60 & 75 TONS

DETACHES, LOADS AND ATTACHES IN 5 MINUTES — LOADS EASILY OVER LOW FRONT OF DECK — RAISES ITS DECK TO CLEAR HIGH BANKED CROSSINGS — STOOPS TO CLEAR LOW OVERHEAD OBSTRUCTIONS — 20" & 24" TIRES INSURE GREATER TIRE LIFE, LARGER AND MORE EFFECTIVE BRAKES: AND OFTEN PERMIT INTERCHANGEABILITY WITH TRACTOR TIRES.

THE ROGERS Power Lift DETACHABLE GOOSENECK CAN BE OBTAINED ON ANY STANDARD ROGERS DROP DECK TRAILER

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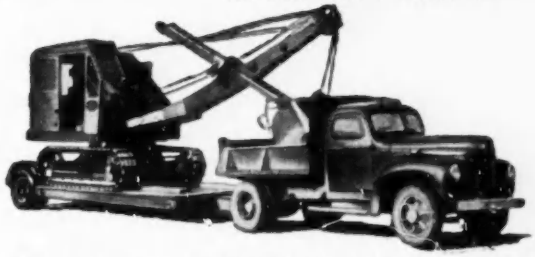

Also of timely interest is this ROGERS Tag-A-Long trailer which makes a dump truck serve as a tractor and effects sizeable savings for contractors.

Export Office: 50 Church St., New York 7, N. Y., U. S. A. Cable Address: Brosites

ESCO Box Points stay sharp longer, wear longer than solid teeth — increase point life up to 340%. When an *ESCO* two-piece tooth does wear down you replace just the box point *—not the entire unit as you would with solid teeth.* The heavy, shock-resistant *ESCO* Adapter stays on your dipper or bucket ready for action. On the average job you use up to 12 long-wearing box points on the same adapter. *During the life of one adapter, you would have worn out, changed, and thrown away, 12 sets of solid teeth.*

Here's economy, too! With *ESCO* Adapters you change 4 box points in 5 minutes. Cut expensive maintenance time. Eliminate costly machine down-time.

There's an ESCO Box Point and Adapter to fit any standard dipper or bucket. Choose from six exclusive point shapes —widths from 3" to 7"—that give maximum digging efficiency and longer point life in every digging condition. ESCO Box Points *start sharp, stay sharp.*

For details write for Bulletin 187-A, or New Box Point 35 mm Sound Slide, Color Film, "The Shovel Runner's Dream".

ESCO

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Offices and Warehouses: Honolulu, Hawaii; Houston, Texas; New York, New York; Los Angeles, San Francisco, California; Seattle, Spokane, Washington; Centralia, Pennsylvania; Eugene, Medford, Oregon; Salt Lake City, Utah. In Canada: Vancouver, B. C., and Toronto, Ontario.

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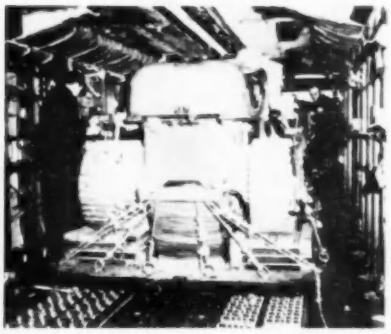
meeting will be held the following day. The annual meeting of the full membership will be held January 14, at which time new officers for 1954 will be elected.

Present officers are: J. J. O'Donnell of the Lummus Co., New York, president, and T. C. Williams, Stone & Webster Engineering Corporation-Badger Process Division, Boston, vice-president.

Army Gets Construction Equipment from Sky

The US military has come up with an exciting way of getting construction equipment to remote areas where air strips can quickly be established within striking distance of an enemy.

The initial phase of the plan was conducted as Operation "Test Drop" during which nearly 500 tons of construction equipment were parachuted to the earth. Army Engineers used the equipment to carve an air strip out of a wooded area about two miles from the drop zone.



Men secure an Allis-Chalmers HD-5G tractor in cargo hold of C-124 flying boxcar for Operation "Test Drop" maneuvers.

A new runway was the product of only five days of work. It was capable of receiving C-124 air transports loaded with fighting equipment and troops.

Market More Power

Detailed plans for marketing additional power in the Western Division of the Missouri River Basin Project have been announced by Secretary of the Interior Douglas McKay. These plans are in accord with criteria for marketing the power which the Secretary recently approved.

Offered for sale will be about 115,000 kw. Of this, 104,750 kw will come from the Pole Hill and Flatiron powerplants in Colorado which will be completed by early 1954. The power will be marketed in an area comprising that part of Wyoming east of the Continental Divide, all of Colorado, and Nebraska west of the 101 meridian.

Applications for power will be ac-

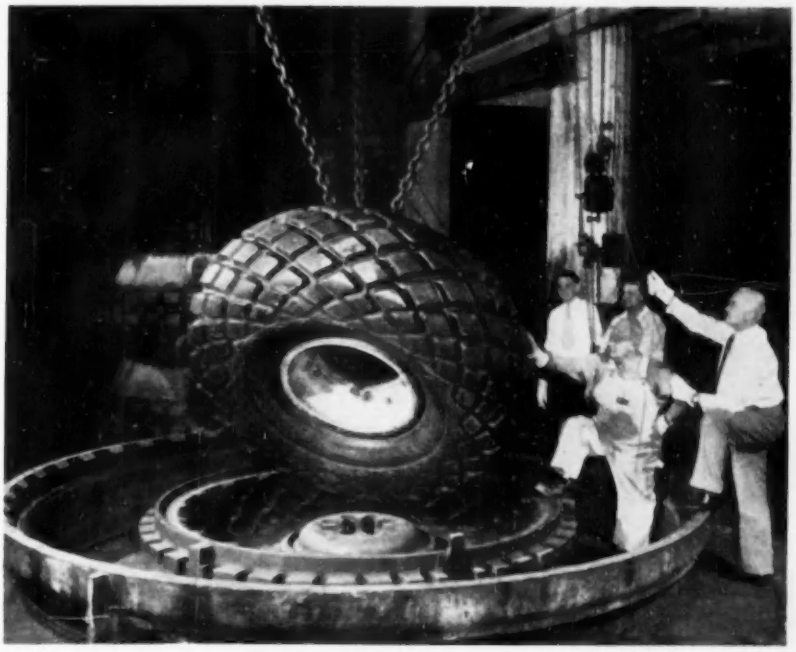
cepted by the Bureau of Reclamation up to January 1, 1954. No applications received after that date will be considered. Organizations already receiving service from the Bureau of Reclamation but which desire additional power must apply as well as prospective new purchasers.

Preference in sale will be given public bodies and cooperatives. Any remaining power will be available on equal terms to non-preference customers. The Bureau does not expect that customers will desire to contract for power beyond their requirements in the next two years, as revision of rate schedules will require payment for power contracted for but not used.

Reach Tire Record

Tire production at Akron, O., reached another record-breaking figure (world-wide) on October 6 with the completion by Goodyear Tire & Rubber Co. of its 600 millionth pneumatic unit to be built for motor vehicles.

Lifted from its mold at start of the rubber firm's 55th anniversary celebration, the symbolic milestone tire was of the huge Earth Mover type (size 27.00—33) used on certain off-the-road vehicles. Weighing about three-fourths of a ton and standing nearly seven and one-half feet high, the tire is priced in the neighborhood of $3,500.



Big Earth Mover tire built by Goodyear Tire & Rubber Co. marks 600 millionth pneumatic unit for vehicles made by firm — new world record for single company.

Goodyear President E. J. Thomas added a dramatic touch to the milestone occasion. He assisted operators in hoisting the big Earth Mover from the mold after it was cured.

Built for a load capacity up to 31,200 lbs. with 35 lbs. air inflation,

DON'T LET "WEATHER" CUT EFFICIENCY
team up with
The Genuine
Why tie up your equipment and reduce the efficiency of the operator during cold weather? The Genuine HEAT-HOUSER manufactured from HEAVY DUTY, water resistant canvas is designed for maximum operator room and vision. Compact, one piece easily installed on most industrial type tractors it will protect equipment and operator during those cold working days ahead. WRITE FOR COMPLETE DETAILS. THE COST IS LOW AND THE SERVICE HIGH . . . SPECIFY THE GENUINE HEAT-HOUSER . . . KEEP WARM WHILE YOU WORK.
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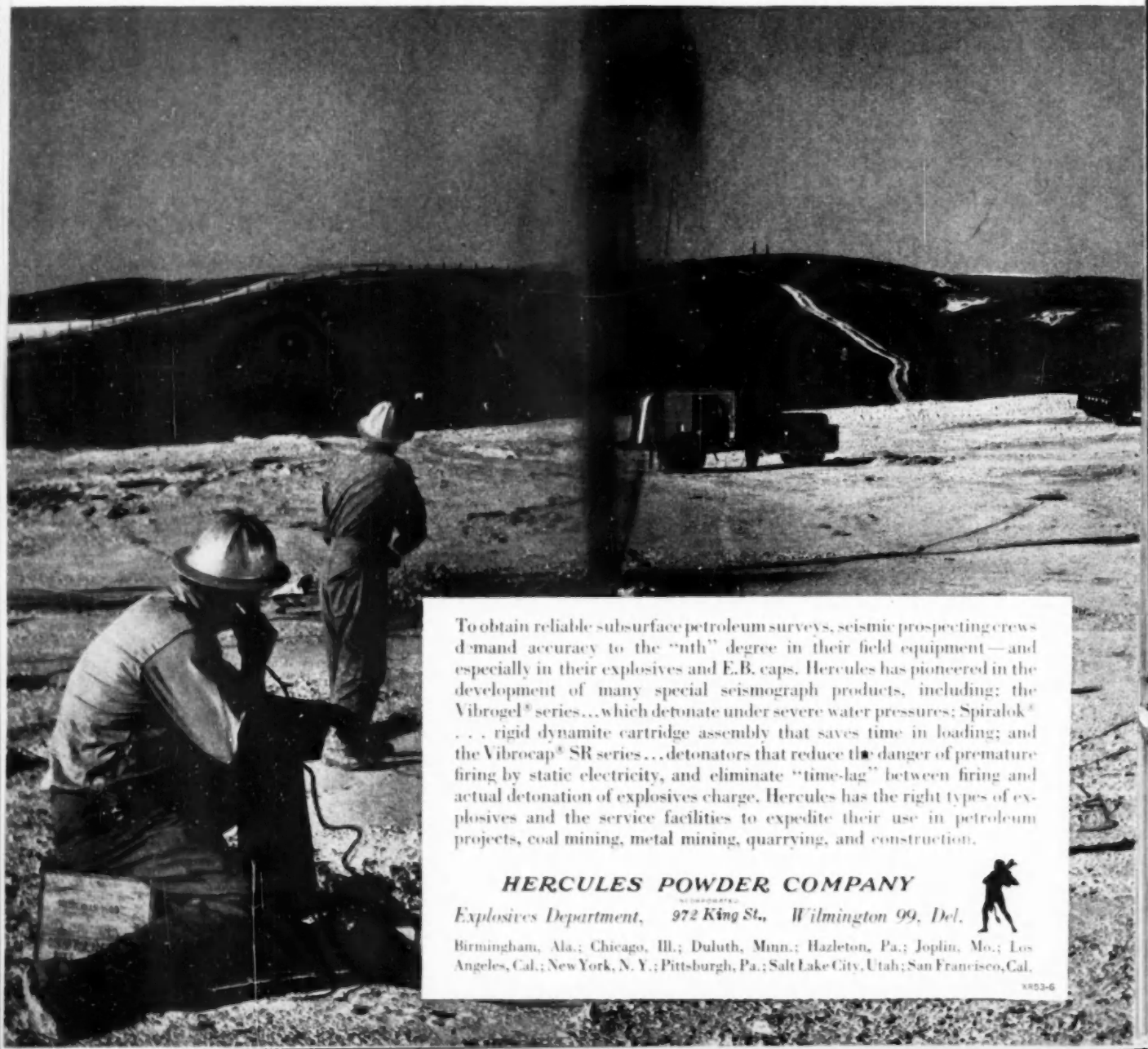

To obtain reliable subsurface petroleum surveys, seismic prospecting crews demand accuracy to the "nth" degree in their field equipment—and especially in their explosives and E.B. caps. Hercules has pioneered in the development of many special seismograph products, including: the Vibrogel® series...which detonate under severe water pressures; Spiralok® . . . rigid dynamite cartridge assembly that saves time in loading; and the Vibrocap® SR series...detonators that reduce the danger of premature firing by static electricity, and eliminate "time-lag" between firing and actual detonation of explosives charge. Hercules has the right types of explosives and the service facilities to expedite their use in petroleum projects, coal mining, metal mining, quarrying, and construction.

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XR53-6

the milestone unit bears the company's long-familiar diamond tread design—termed "All-Weather." The heavy diamond shaped knobs supply extra grip and traction in mud and other rough going. Tires like this are used chiefly on big earthmoving vehicles such as scrapers employed in road building and in other heavy construction tasks.

The 600 millionth unit would be comparable in weight to about 66 popular sized passenger car tires.

Significant in view of Goodyear's current anniversary event, President Thomas points out, is the high rate of increase in the firm's tire production, especially during recent years. He cited how it requires 18 years for the company to build its first 25 million units, a number turned out nearly every 10 months.

Build First "All Cable" Suspension Bridge

The first "all-cable" highway suspension bridge built—a bridge using no stiffening trusses or girders and having no vertical suspension ropes—has been completed across the Rio Lempa in El Salvador, Central America, by John A. Roebling's Sons Corp. of Trenton, N. J., a subsidiary of Colorado Fuel and Iron Corp.

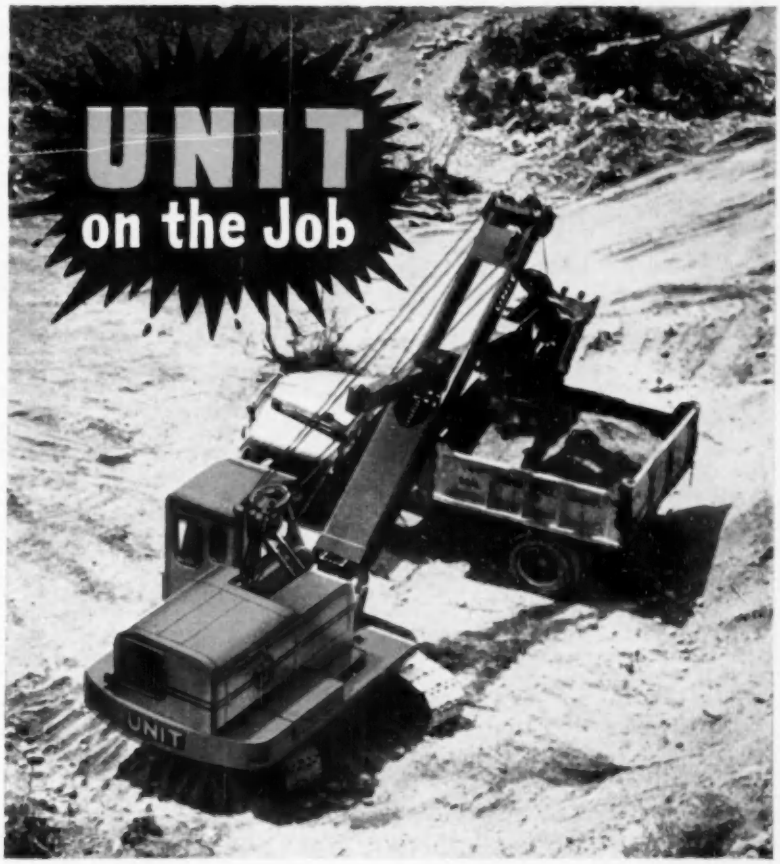
In effect, the radical new San Marcos Bridge is a section of concrete highway suspended in mid-air solely by webs or wire rope attached to the two main cables.

The $2.5 million bridge is one of the longest in Latin America. About one-half mile in length, its five suspended spans all use the novel cable truss system, developed by Roebling engineers, which carries all dead and live loads by means of a network of diagonal cables acting as web members of a truss. Although lighter and more fragile in appearance than conventional suspension bridge design, the new bridge is declared to be even more resistant to earthquakes or tropical hurricanes, which occur regularly in Central America.

The San Marcos Bridge is located on the new Coastal Highway about 50 miles southeast of the capital city of San Salvador, El Salvador. Its construction is part of an extensive farm-to-market construction program which the government of El Salvador estimates will be completed in 1954.

The basic idea behind this diagonal-stay suspension bridge is not new, but dates back at least 100 years. John A. Roebling used diagonal stays in the design of the Brooklyn and earlier bridges, giving these structures their unique spider-web appearance.

Continued on page 42



SWING SPEED makes PAY LOADS!

Here's a UNIT ½ Yard Shovel doing a PRODUCTION DIGGING JOB in a gravel pit. UNIT owners like the ease of operation and the FULL VISION CAB for complete visibility. They also like the sturdy construction and the many mechanical features, plus the ECONOMICAL PERFORMANCE and LOW UP-KEEP which all add up to EARNING POWER. Why not investigate what UNIT can do for you — on YOUR next excavating and material handling job?

SEE FOR YOURSELF: *Let us send you our novel TV Brochure. It illustrates the complete UNIT line.*

UNIT CRANE & SHOVEL CORPORATION
6613 WEST BURNHAM STREET • MILWAUKEE 14, WISCONSIN, U. S. A.

½ or ¾ YARD EXCAVATORS...CRANES UP TO 20 TONS CAPACITY
CRAWLER OR MOBILE MODELS . . . GASOLINE OR DIESEL

All Models Convertible to ALL Attachments!

A-7147-2/3-PC

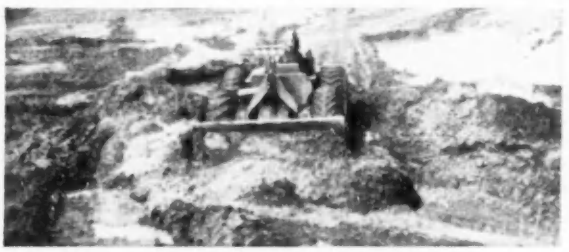
Advertisement

Pictures of the month... by LeTourneau-Westinghouse...

HAULS 50 TONS PER LOAD — Diamond T Stripping Company of Philipsburg, Pa, moves 7000 yds of overburden per 16-hour day with 2 Model "A" Tournarockers. These giant Rear-Dumps haul 50 tons of the blasted rock per trip. They are loaded by a 6-yd Lima shovel. Operators control Tournarockers easily . . . just push an electric switch to steer or dump . . . flick a small lever to change gears. No wrestling bulky levers . . . no clutching needed. Photos show stripping from a Class D seam of coal

STRIPS 66 PAY YDS PER HR — Georgia Lime Rock Company works this D Tournapull 12 months a year to strip 3 to 30 ft of low-grade Fuller's earth. Because of its speed, one-man "D" alone uncovers enough lime rock to keep the plant busy. In typical operation, "D" loads 5½ bank yds in 25 seconds. Output averages 66 to 71 bank yds hourly over 1800 ft cycles.

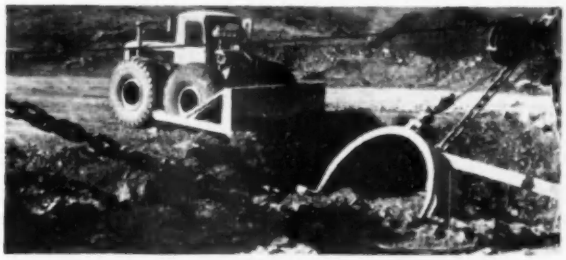
99% EFFICIENT — $56.80! That's all Bill Ward has spent for repairs on his 2 Tournatractors — one 2 years old; the other, 3 months! Used mainly on mine-maintenance-type jobs, both units have been 99% mechanically efficient. They drive everywhere without planking. Main assignments: pulling 45-ton trailer, maintaining access roads, leveling dumps, grading parking areas, stockpiling coal.



CLEARS FLOODED GRAVEL PIT — Big low-pressure tires give Gil Wyner's Tournatractor ample flotation for clearing muck from this rain-flooded gravel pit near Gloucester, Massachusetts. Unit also handles shovel clean-up, miscellaneous odd jobs. Travel between assignments is made under own power . . . Tournatractor drives everywhere at speeds up to 19 mph.

. . . with performance reports from around the world

4 MILES FROM ARCTIC CIRCLE — At Jumisko, Finland, 6 Tournarockers are hauling 400,000 yds of granite to excavate 4 miles of tunnels for water power. Winter temperatures drop to 40° below, but units operate 24 hours a day. With 13 ft 9 in. turn radius, they maneuver easily in the 20 ft tunnels.



WORKS IN ABRASIVE MATERIAL — Westmoreland Manganese Corp, Batesville, Arkansas, works their Tournatractor in material so abrasive that dragline teeth must be replaced every 8 hrs. This set of tires, retreaded once, still has 45% of tread left after over 1000 hrs of use. Unit cleans clay and flint rock from around 2½-yd shovel and 5-yd dragline.

ECONOMICAL ON 700 FT PUSH — Replacing 2 crawler-tractors for Marietta Concrete Corp, Ohio, Tournatractor pushes sand and gravel 50 to 700 ft to dragline for loading. Because this unit dozes at 3½ to 8 mph, it equals output of both big crawlers which could work no faster than 1 to 2 mph.

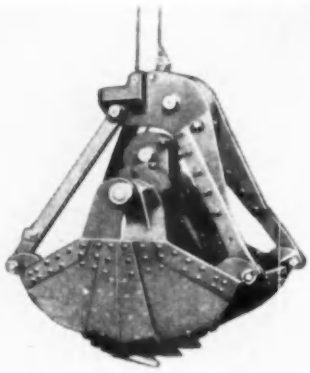
TIRES OUTLAST TRACKS, 4 TO 1 — Because tracks on their crawler had to be replaced every 650 to 900 hrs, Miami Crushed Stone Co, Florida, bought this Tournatractor for stockpiling, other odd jobs. In 9 months, Tournatractor worked 3800 hrs — still had original tires. In 12 months, their crawler worked only 2600 hrs. Crawler lost hours for track repair; was often idle because it could not economically handle scattered jobs. Frequently, Tournatractor could get to job, do work, and return before crawler could travel ¼ mi. Tournatractor also boosted production . . . pushing sand 150 ft, it delivered 2 loads to crawler's 1. For more information on Tournatractor or other tools, write LeTourneau-Westinghouse Company, Peoria, Ill.

Tournapull, Tournarocker—Trademark Reg. U.S. Pat. Off. Tournatractor—Trademark Pic-524-M

Don't Let the Wrong BUCKET
PICK YOUR POCKETS

When a bucket's too small, you lose pay load with every pass. When it's oversize, equipment wears out before its time. Either condition will pick your pockets systematically.

To be sure you have the right unit for the job, let Erie's field engineers survey your requirements. There's no charge. And you can be sure they'll come up with a helpful suggestion. They usually do.



For more about Erie Buckets and what they can do for you, write for Bulletin #403.

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STEEL CONSTRUCTION COMPANY

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STURDILITE

HEAVY-DUTY FLOOD LAMPS

For Better Light — Longer Service — Lower Cost

Especially Designed For Efficient Service On

Shovels, Excavators, Drag-Lines, Roadbuilding Equipment Locomotive Cranes, Tractors . . .

Rubber Mounted Base — Standard Model

Portable STURDILITE

New model for inside or outside use. Equipped with convenient carrying handle and substantial pedestal base. Spring-mounted light socket. 4-ft. cord and connector. For all voltages. Weighs only 12 lbs.

STURDILITE Heavy-Duty Flood Lamps provide specially high light intensity and spread. Heavily constructed for years of trouble-free service. Hermetically sealed-beam lamp — no reflector to tarnish. Spring-mounted socket. Complete assembly mounted on rubber cushioned base to absorb vibration and shocks. Available in 6-8, 12-16, 24-28 and 110-120 voltages.

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— Specifications, Quantity Prices

Metal Spinning Division
PHOENIX PRODUCTS COMPANY
4723 N. 27th ST., MILWAUKEE 16, WIS.

News . . .

Continued from page 39

The design used in the new San Marcos bridge, was first tried out on a small interoffice footbridge at the Roebling plant in Trenton. Later, a five-span footbridge employing this principle was built across the Delaware River at Lumberville, Pa. The same basic ideas were employed in a design development for the Corps of Engineers during World War II.

The new San Marcos Bridge carries the roadway at a high level because of the danger of heavy flash floods. The longest of the five spans has a length of 670 feet; the intermediate spans are about 520 feet in length; and the end spans about 250 feet, making a total suspended length of about 2,240 feet. Seven additional girder spans at the ends bring the total length of the bridge to about 2,547 feet.

Each of the two main cables on the San Marcos Bridge consists of 24 1½-in. diameter galvanized bridge strands. The main cables are of open strand construction, with special cable bands. Steel connectors clamp the 24 main-cable strands in four groups of six each, at all intersections of main cables and diagonals.

The diagonal cables, extending from the main cables to the lower-chord cables and back again, consist of one or two 1⅜-in. diameter galvanized bridge ropes.

Eight 1⅜ diameter galvanized strands make up each of the two lower-chord cables.

The steel edge girders were made of 36-in. wide-flange beams. Forming a continuous girder over all five spans, the beams have practically no effect on the stiffness of the bridge, functioning primarily as supports for the bridge deck between cable-truss panel points.

"Breaks Ground" for New Milwaukee Shopping Center

In an up-to-date version of the old ground breaking ceremony with a gold shovel, an 18-yd. Heiliner hi-speed scraper and other earthmoving equipment recently made the first cut for a $15 million shopping center in Milwaukee, Wis.

Eventually 190,000 cubic yards of dirt will have been moved for grading, leveling, and foundation excavation. Ryan Brothers, Janesville, Wis., is the general contractor for the big job.

Twelve pieces of equipment, including the Heiliner, were lined up in formation ready to move at the first blast of an air whistle. Max E. Friedmann, president of Ed. Schuster & Co., Inc., one of Milwaukee's largest de-

dynamic new engine gives the popular D Motor Grader increased work power

The thousands who own Allis-Chalmers Model D's know the ability of these versatile machines to do outstanding work on both construction and maintenance jobs. Now — with extra power and added features — the Model D sets even higher performance standards in the low-cost grader field.

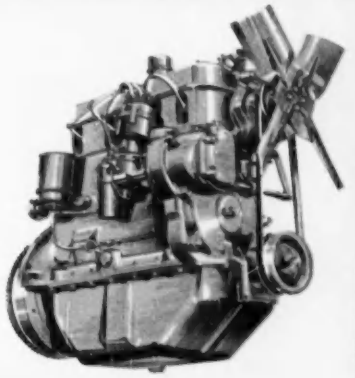
Dynamic New Power-Crater Engine gives the Model D reserve power to : (1) handle the same loads in higher gear or bigger loads in the same gear, (2) increase road speeds, especially where there are grades, (3) reduce need for shifting, thus lengthen clutch life, (4) give better all-round maneuverability. There's plenty of power to crowd while loading with the rear-end loader. Engine throttles down to half speed *and still does the same job* — on low-speed work.

Leaning front wheels* enable the Model D to handle new jobs . . . counteract side-draft on ditching and bank cutting.

Power circle turn* permits easy positioning of blade from operator's seat. When finishing subgrade or blacktop, for example, moldboard can be readily rotated without disturbing road surface.

These and other big-grader features — such as ground-gripping Tandem Drive, ROLL-AWAY Moldboard, Tubular Frame and Power Controls — combined with extra power make the Model D the accepted leader in the low-cost grader field. Ask your Allis-Chalmers dealer to demonstrate on your own job.

ROLL-AWAY is an Allis-Chalmers trademark.
*Optional equipment



POWER-CRATER Engine brings *truly modern* power to the Model D

This new engine boosts power while using less fuel per horsepower. It obtains high-octane performance when using regular gasoline. Only by watching a new Model D work can you fully realize what this truly modern engine adds to its performance!

Weight: 8,800 lb. (bare) • Brake Horsepower: 50
4 Speeds forward to 25.6 mph.
Reverse Speed 3.3 mph.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

Included in fleet of "ground breakers" for a new $15 million shopping center in Milwaukee, Wis., is this 18-yd. Heiliner hi-speed scraper of the Heil Co.

partment stores and sponsors of the project, sounded the signal for the battalion of earthmovers to advance. With the roar of many Diesels the big machines bit into the top soil of the 65 acre tract.

Schuster executives, local government officials, and business leaders witnessed the 15 minute ground breaking ceremony while newsmen, and radio and television representatives recorded the event.

Besides the Schuster store, the shopping center will contain shops for 60 other retail and service businesses and an office building. The parking space will accommodate 6,000 cars.

AGC and ASCE Publish New Contract Form

The American Society of Civil Engineers and The Associated General Contractors of America have announced the publication of a suggested contract form for use as a guide in preparing contracts for private engineering construction projects.

Drafted by the A.S.C.E.-A.G.C. Joint Cooperative Committee, the document replaces an older form that had been unchanged since 1925. Entitled *Suggested Form of Contract For Use in Connection With Engineering Construction Projects*, the form is not intended for building construction.

One of the primary aims of the committee was to avoid confusing terms and to use language that could be clearly understood by engineers and contractors. Formulation of a suggested contract form was one of the first tasks the committee assigned itself upon its organization late in 1948. Completion of the document is regarded by the committee as one of its most important projects to date.

The material contained in the 15-page document pertains to (1) the contract agreement itself, covering the three alternative bases of payment to the contractor, i.e., lump sum, unit price and cost-plus, and (2) the general conditions of the contract.

Included in the contract agreement are articles covering the scope of the work; time of completion; the contract sum; progress payments; force account work, and acceptance and final payment.

The general conditions of the contract cover such items as definitions; execution, correlation and intent of documents; design, drawings and instructions; order of completion; contractor's understanding; materials, appliances, employees; superintendence; inspection of the work; owner's right to terminate contract; contractor's right to stop work or terminate contract; payments withheld prior to final acceptance of work; etc.

Present co-chairmen of the committee are: Gail A. Hathaway, officer of Chief of Engineers, Department of the Army, Washington, D. C., for A.S.C.E., and Dwight W. Winkelman, D. W. Winkelman Co., Syracuse, N. Y., for A.G.C.

Copies of the new standard contract form are available from A.S.C.E., 33 West 39th St., New York 18, N. Y., or A.G.C., Munsey Bldg., Washington 4, D. C. Price is 25c each, $2.75 for 12, and $20 for 100. The document is designated A.S.C.E. Form JCC-1, and A.G.C. Standard Form 3.

Governor Urges Study of Ohio Water Supply

Governor Lausche recently asked the Ohio Water Resources Board to consider a proposal for the relief of water shortages in northern and southern Ohio by tapping Lake Erie and the Ohio River.

Outlining his plan in a letter to Director A. W. Marion of the State Natural Resources Department, the governor said he wants to know wheth-

Pick A Money Maker

When you are trying to decide on the Dragline Bucket for your use, base your judgment on these 3 important points: (1) Digging Ability, (2) Long Life, (3) Low Repair Expense. For over 42 years Omaha Dragline Buckets have passed these tests in actual work accomplished in the field. Write for catalog giving specifications of 4 available types.

Of Course IT'S AN OMAHA DRAGLINE BUCKET

DRAKE-WILLIAMS-MOUNT • OMAHA, NEBR.

er it's worthwhile to study plans to pipe water from Lake Erie and or the Ohio River or build reservoirs in the upper reaches of both watersheds. He also wants to know the possible costs and benefits from one or a combination of the plans.

Marion, who said the governor's plan would be presented to the State Water Resources Board, estimated a thorough survey would take two years and that it would be four or five years before first benefits from a pipeline would be felt. He was unable to estimate the costs of either.

"With our tremendous growth in population and industrial activity water shortages will grow," Lausche said, pointing out that "this need is acute in northern and southern Ohio."

The governor noted, however, that no funds are available for a thorough survey now.

"It would take a pretty extensive survey to find out where the lines should go," Marion declared. "Certainly in some areas it would be feasible to pump water from Lake Erie. I think the governor is right in asking for a survey to find out whether it's practical."

Marion said that if a pipeline terminated far enough into Lake Erie, water drawn off would be as pure as well water. Ohio River water, he said, now carries a large amount of industrial wastes and would not be as pure.

Reservoirs wouldn't work out as well in northern Ohio as elsewhere because of clay in the soil which would make the water muddy, Marion said.

Appoint District Engineer

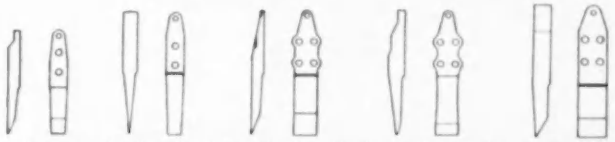
Donald H. Herak has been appointed district engineer of the Spokane, Wash., office of the Portland Cement Association effective October 1, according to an announcement by Carl D. Franks, association president. Herak succeeds Robert E. Tobin, who has accepted a position as engineering consultant for the Spokane Concrete Pipe Co.

Herak joined the staff of the Portland Cement Association in August 1951, as field engineer for the Spokane office.

A graduate in 1946 of Gonzaga University, Herak has a B.S. degree in civil engineering. Following his graduation, he was employed by the Bureau of Reclamation as a construction engineer at Hungry Horse Dam in northwest Montana.

Herak is a member of the American Society of Civil Engineers and the Washington Structural Engineers Society. As district engineer of the Spokane office, he will direct association activities in eastern Washington and northern Idaho.

for Added Efficiency!



Types of Standard Teeth for Various Conventional Operations

Corner teeth

Side cutting teeth

A bucket of recognized ability becomes a greatly improved "digger" when equipped with teeth of proper type and design.

Owen Buckets are designed to utilize the weight of the bucket to force the teeth into the material when dropped contributing to their reputation as exceptionally efficient digging buckets.

Owen teeth are designed especially for "deep penetration"—teeth that "grasp and hold"—teeth for "breaking down resistance at corners" to aid shell penetration—side teeth "to cut wall clearance" in trench excavation, etc.

Special Teeth

"A mouthful at every bite"

BUCKETS AND GRAPPLES

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THE OWEN BUCKET CO.

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Branches: New York, Philadelphia, Chicago, Berkeley, Calif., Fort Lauderdale, Fla.

MEASURE OUTPUT

by "Koehring Work Capacity"

There are some very simple ways to measure output of excavators and cranes in advance. Take lifting capacities, for example. Obviously, the machine with the heaviest lift capacity will not only pick up larger crane loads, it also has more stability and power to increase shovel and hoe production — handles bigger dragline and clamshell buckets on a wider work range.

Be sure to check lift ratings, and other clear-cut measurements of "KOEHRING WORK CAPACITY", before you buy any excavator or crane. Your Koehring distributor has important figures to show you — ask for them.

KOEHRING Company

MILWAUKEE 16, WISCONSIN

Subsidiaries: PARSONS • KWIK-MIX • JOHNSON

lift capacities up to 79½ TONS . . . ½ to 2½ YARDS dipper capacities

Equipment You Ought to Know About

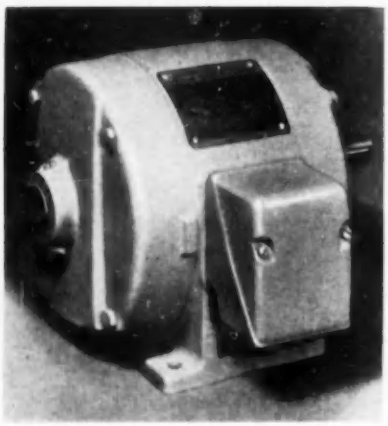
AC Motors

Manufacturer: General Electric Co., Schenectady 5, N. Y.

Claims: A new line of polyphase ac motors offers better protection, more efficiency, and quieter operation.

Called Tri-Clad "55," the new motors are the result of more than 250,000 man-hours of developmental engineering and research. Built to latest standard NEMA frame dimensions, they feature entirely new and advanced concepts of motor design.

With an average size reduction of 50% by volume and averaging 22% less weight per horsepower, the "55" retains rigid cast-iron construction and incorporates a new insulation system, bearing assembly, and ventilation plan.



The keystone of the insulation system is a new polyester film which is eight times as strong as previously used materials. It is used to insulate the phases and slot tubes in the stator—the points of hardest motor wear.

A double-end ventilation system uniformly cools the motor by drawing air in from beneath both endshields, through carefully baffled air passages, and out louvers on the sides of the frame. Larger integrally-cast rotor fans increase the cooling air flow through the motor and dissipate rotor heat more effectively.

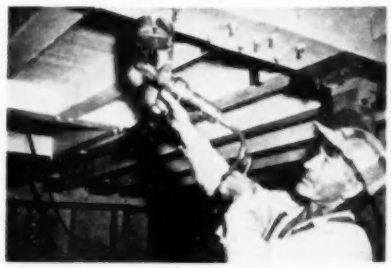
A major part of the new motor design involves noise levels. The noise level of the new 10-hp motor tests as low as the former 2-hp model.

The new motors will be available in the 182 and 184 frame sizes (1, 1½, and 2 hp at 1800 rpm) in horizontal drip-proof and totally-enclosed fan-cooled models, and a complete line of gear-motors. Larger frame sizes will become available at regular intervals.

Bolt Cutter

Manufacturer: Manco Manufacturing Co., Bradley, Ill.

Claims: A new hydraulic angular bolt cutter is designed for flush trimming bolts to the nut or for other metal trimming jobs where a close cut is desired. The Guillotine Angular Bolt Cutter, as the unit is called, has a capacity for trimming ⅞-in. mild steel bolts. It can also be obtained with cut back jaws for use in splitting nuts during wrecking operations or for trimming wire mesh. Power is supplied through a portable hydraulic pump. The unit is actuated by a manual lever which eliminates the necessity of solenoid switches.



Heavy-Duty Lubricant

Manufacturer: D-A Lubricant Co., Indianapolis 23, Ind.

Claims: "D-A Lithium, Extra-Heavy"—a new heavy-duty lubricant compounded to meet special needs where excessive heat is a problem—has been announced by the manufacturer.

Designed around an unusually heavy base oil and an improved Lithium stearate, "D-A Lithium, Extra-Heavy" combines superior wear resistance with

1. Fast Loading. *Famed Red Arch provides an open door for "flowing action" loading on every pass. Teeth and cutting edge, angled for quick penetration, take big bites.*

2. Smooth Carrying. *Pin-point balance enables you to carry a full load on every swing. There's no bobbing, and ordinary spillage is reduced.*

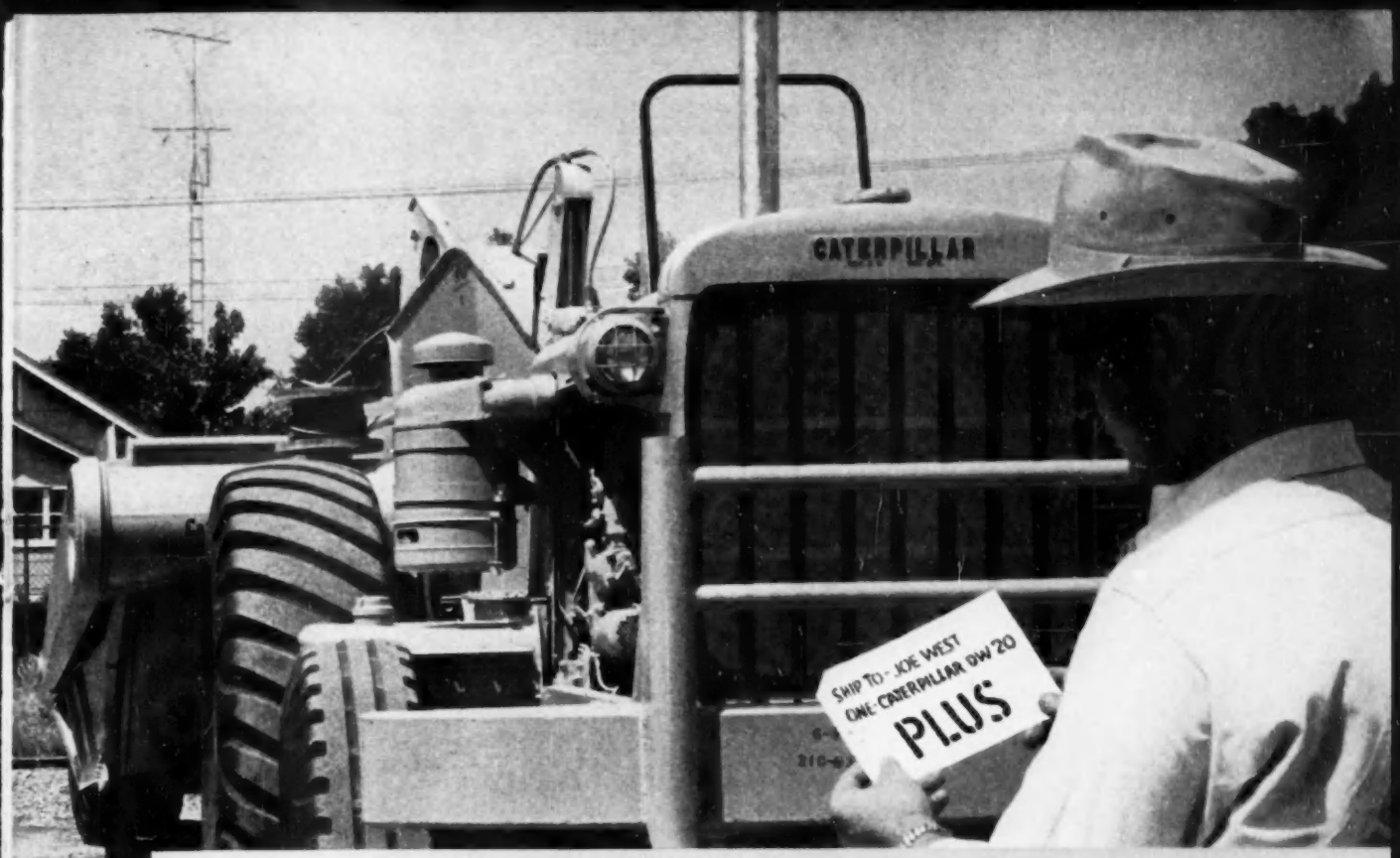
3. Clean Dumping. *The high Red Arch lets the load drop out of bucket as freely as it flows in.*

4. Long Life. *Rigidly braced alloy steel body has built-in strength for long, hard service life. On-the-job dependability means bigger profits, lower upkeep costs.*

IR53C

Write today for complete details on Red Arch dragline buckets. Sizes range from ⅜- to 30-cubic yards.

BUCYRUS ERIE
South Milwaukee, Wisconisn



YOU get more for your money than just a tractor!

When you buy a piece of Cat* equipment, you think of a lot of other things besides tough steel and yellow paint. Things you can't see or feel or touch, but that will help you make *more money this year—and year after year!*

You *know*, for instance, that you can figure closer on a contract, because your equipment will keep you on schedule. Its stamina, *plus* on-the-spot service from your Caterpillar Dealer, cuts down time to the minimum.

You *know* the bank will give you better financing on big yellow machines because of their reputation.

You *know* there are no "orphans" in the line. You can work Caterpillar machines *profitably* for years and *always* get parts for them—at the standard low list price.

You *know* that day after day, week after week, month after month, they will do *more* work with *less* down time at *lower* cost than any competitive units.

And, finally, you *know* that when you're ready to trade in a Cat machine, you'll get more money for it—the *top* resale value in the field.

Getting ready to buy earthmoving units? Fine. Look them all over. *But look at their last cost first.* Remember what you *know* about Caterpillar!

Caterpillar Tractor Co., Peoria, Illinois.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks—®

DIESEL ENGINES
TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT

the ability to perform efficiently at extreme temperatures.

The new lubricant will be available in 35-lb. pails and 100-lb. quarter drums.

Hoist

Manufacturer: Heil Co., Milwaukee 1, Wis.

Claims: The new twin cylinder Model 2426 hoist is specifically designed for 8-ft. to 17-ft. long platform bodies and 8-ft. to 10-ft. dump bodies.

Operating features claimed for the new hoist include a 50° dumping angle for swift and positive dumping of all materials—even wet, sticky dirt; a low first cost because of simple construc-

tion; and a new low in mounting height, with the space from top of the truck chassis to bottom of the body only 9 15/16 inches.

The light weight of the hoist allows a greater payload. The hoist can be used with an 8-ft. to 10-ft. dump body, or any platform body—even a ¾-ton or 1-ton pick up truck if the frame has no "kick up" and the outside width is 36 inches or less. It can be mounted in a few hours' time.

Payload capacity of the hoist when used with a platform body ranges from 3¼ tons with a body length of 17 feet, to ¼ tons with a body length of 9 feet. When mounted with a dump body the payload capacity is rated from 5½ tons to 4¼ tons, using 8-ft. to 10-ft. body lengths.

Conveyor Belt

Manufacturer: B. F. Goodrich Co., Akron, O.

Claims: A rubber conveyor belt made with a surface that sheds or retains water is now helping in the production of taconite, a valuable new source of iron ore.

The belt automatically dewaters finely ground taconite as it conveys the wet material from storage tanks for processing. A simple adjustment makes the belt retain water with equal ease.

According to the Industrial Products Division, secret of the belt's dual performance lies in its unique cover design. Molded rubber ridges, ⅛-inch high are formed in a continuous series of chevron patterns spaced several inches apart.

Operating on a predetermined conveyor incline angle, with belt idlers also placed at a specified angle, the chevron-like ridges channel water to the edges of the belt where it flows off. The material conveyed rests in the center of the belt and makes the trip free of water.

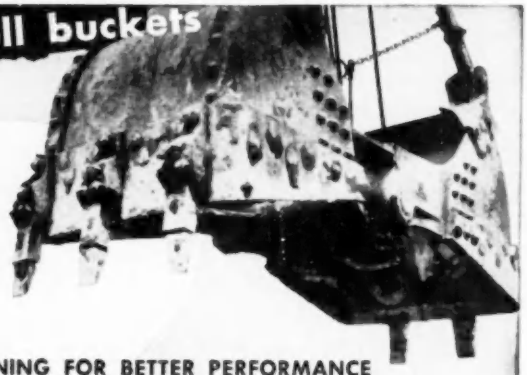
Adjustment of the conveyor incline angle and the angle of belt idlers changes the chevron patterned surface into a series of horizontal carrying ribs which retain water on the belt and permit even distribution of moisture throughout the material.

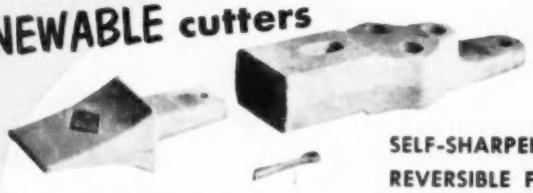
Adjusted this way, the belt handles wet mixed concrete and similar moist materials on steeper inclines than can be negotiated on a smooth surface belt. The Riffle Grip design permits even distribution of the water throughout the material and prevents water from flowing to the center of the belt to dilute the material to the point where it will slide back on an inclined conveyor.

Continued on page 54

NEW ECONOMY for clamshell buckets

BLAW-KNOX TOOTH BASES with REVERSIBLE and RENEWABLE cutters





The tapered shank of the cutter wedges securely into the tapered pocket in the base. For replacing or reversing, a sharp hammer blow on the sides of the cutter loosens it from the base.

SELF-SHARPENING FOR BETTER PERFORMANCE

REVERSIBLE FOR LONGER LIFE

QUICKLY AND EASILY REPLACED FOR ECONOMY

BASES ARE BOLTED TO THE LIPS AND ONLY THE CUTTERS ARE REPLACED

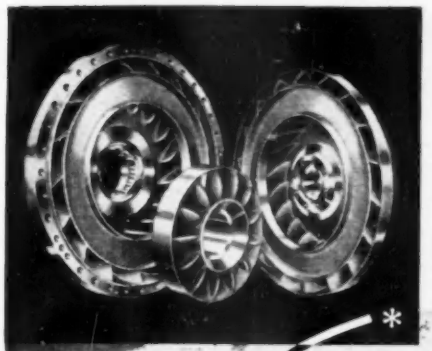
Blaw-Knox tooth bases are available with holes drilled for existing arrangement of tooth bolts on many Blaw-Knox Clamshell Buckets ranging in size from ⅜ to 1-cu. yd., in general purpose, rehandling, hard digging and round nose hard digging types. For some other bucket sizes, blank tooth bases can be drilled to suit existing bolt hole arrangements. See your Blaw-Knox distributor for full details about bases and cutters for *your* buckets.

BLAW-KNOX

BLAW-KNOX EQUIPMENT DIVISION

Blaw-Knox Company

Farmers Bank Bldg., Pittsburgh 22, Pa.



Eventually EVERY Shovel Will be **TORQUE CONVERTER** *Driven*

But You Can Profit by its advantages NOW with a MANITOWOC

Get *extra* yardage, higher daily output, faster cycles, more bail pull, less breakage, smoother operation with a TORQUE CONVERTER equipped MANITOWOC.

Gives you *extra* power for tough going — smoother, faster acceleration throughout the entire cycle — enables you to handle bigger loads, shock loads, jars and jolts without damage to mechanism.

It's the greatest advancement in shovel history — and it's yours NOW, in the Manitowoc line. Manitowoc pioneered this development — more than twelve years ago — hundreds of units now operating. The big swing is to the mighty Manitowocs — Torque Converter driven. Get complete details from Manitowoc Engineering Corp., Manitowoc, Wisconsin.

* BALANCED POWER

Engine operates at maximum efficiency at all times — full engine power for full loads — just enough power for light loads — automatically selected. Engine cannot be stalled — no delays waiting for engine to pick up speed.

SMOOTHER OPERATION

Oil cushion absorbs jolts and jars. Saves cables, clutches, gears and assemblies. Less down time means more yardage.

PRECISE CONTROL

"Fraction of inch" control by either hand throttle or foot accelerator, without slipping clutches or shifting speeds. Makes an expert out of an average operator. Ideal for crane service, setting steel and stone, and general erection work.

MANITOWOC

SHOVELS 1-5 YD. — Speed Crane — CRANES 18-100 TON

"I always choose my Primacord as carefully as I use it . . .

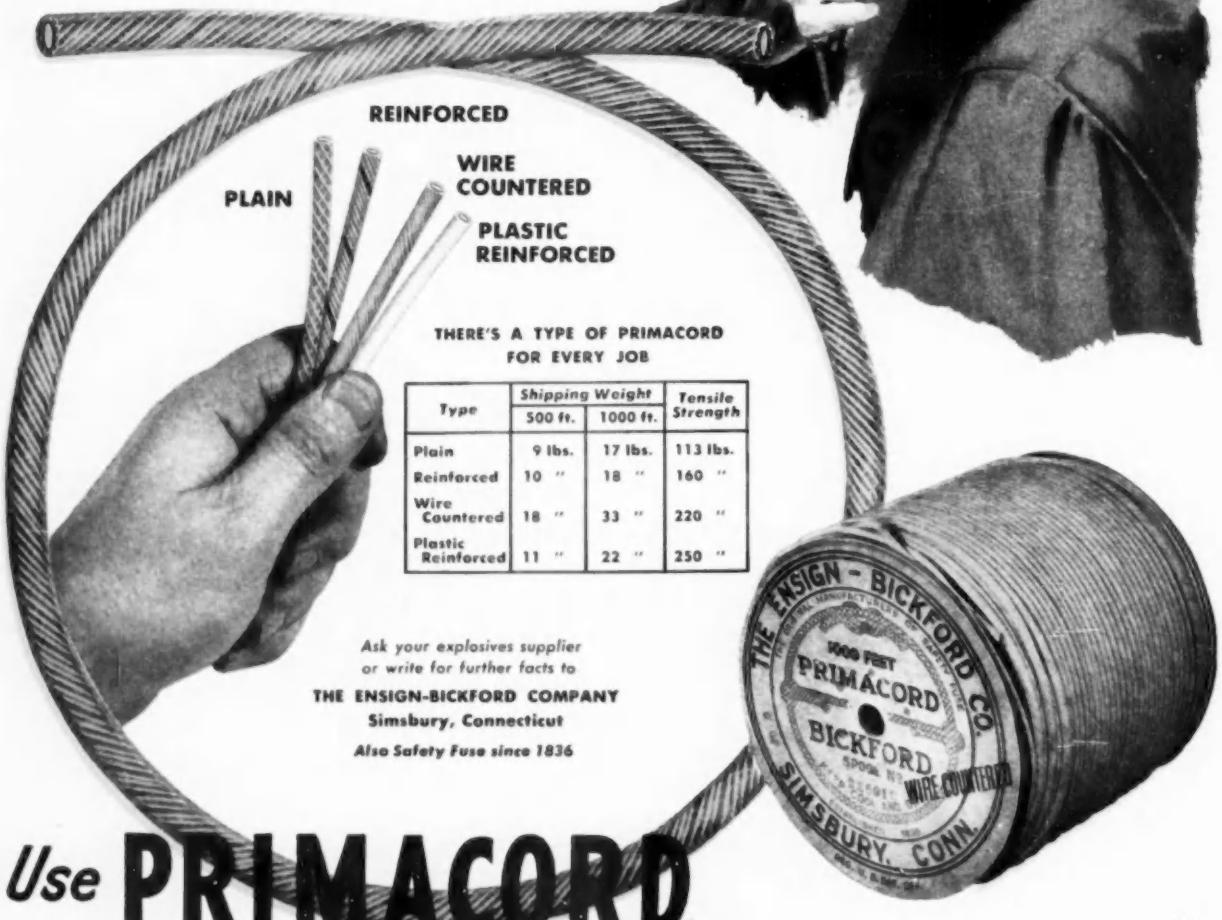
"I've used Primacord to shoot over-burden, ore, rock — and to ditch and clear right-of-way all-over the country. I get good results every time because I choose my Primacord as carefully as I use it.

"Plain Primacord I put down in small-bore or shallow holes, and also use it for the trunk line to hook them up. It's strong, light in weight, and economical. It's easy to tie tight to make a good connection.

"Reinforced Primacord is good insurance where I'm loading deep holes. It'll carry more weight and has a tougher cover to resist abrasion and cutting.

"Wire Countered Primacord is bound with fine wire. I always use it if I think there's any danger of sharp rocks or heavily reinforced explosives containers cutting the Primacord.

"Plastic Reinforced Primacord has a tough, waterproof plastic cover. I've used it in river crossings, in deep holes, or where field shots must stand a long time before blasting. It will take a lot of punishment, and is not affected by high summer heat or winter cold."



THERE'S A TYPE OF PRIMACORD FOR EVERY JOB

Type	Shipping Weight 500 ft.	Shipping Weight 1000 ft.	Tensile Strength
Plain	9 lbs.	17 lbs.	113 lbs.
Reinforced	10 "	18 "	160 "
Wire Countered	18 "	33 "	220 "
Plastic Reinforced	11 "	22 "	250 "

Ask your explosives supplier or write for further facts to

THE ENSIGN-BICKFORD COMPANY
Simsbury, Connecticut

Also Safety Fuse since 1836

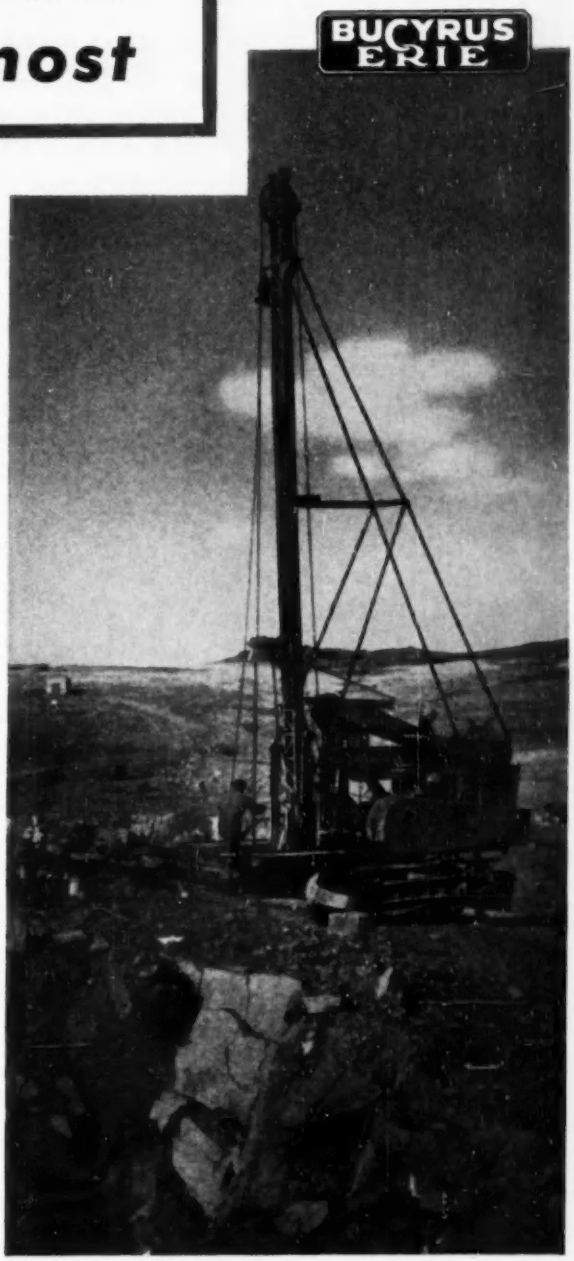
Use PRIMACORD®

P-1

The PROVED and APPROVED DETONATING FUSE

SPEED where it saves you most

Here a Bucyrus-Erie drill pounds out hole in a rock pit. Derrick head shock absorber protects machinery from vibration — reduces cable wear by keeping shock loads down. A Bucyrus-Erie "first" the rubber shock absorber is the most successful yet devised.



Bucyrus-Erie blast hole drills have a nation-wide record for ramming holes down fast—and cheap. A brief rundown shows why—

Big 5⅝ to 12-in. holes—quick— The right balance of tool travel distance, tool weight, and blows per minute — combined with an unmatched rock shattering snap at the impact point — put these rigs "holes ahead" in penetration speed.

Quick moves — Long, sure-footed crawlers mean fast, easy rolling over rough ground — positive traction up 30 percent grades.

Rapid set-ups — Hydraulic leveling jacks (standard on 50-T; optional on 29-T) eliminate elaborate ground preparations, blocking and cribbing. Built-in stabilizing jacks (on the 22-T, 27-T and 29-T machines) provide time-saving 3-point setups even under adverse ground conditions.

Close-grouped controls — Easy handling levers are positioned close together for convenient reach. A driller can run this rig at top speed for long periods without slow down. Built-in tool wrenches (on all except 22-T) safely speed tool changing.

For fast, profitable operation standardize on big hole, fast hole Bucyrus-Erie drills. Four models—5⅝ to 12-in. hole capacities. 8B53C

BUCYRUS-ERIE COMPANY

South Milwaukee, Wisconsin

Here's what makes
"HEIL EQUIPPED" DUMP TRUCKS
PAY-OFF!

Heil double arm, twin cylinder, heavy-duty hoist.

Heil double arm, single cylinder, light and medium duty hoist.

HEIL Bodies and Hoists are built with *your* job in mind . . . to pay off in profit. Heil hoists are fast-acting . . . in less than 12 seconds bodies are elevated to 50° or more! The rugged arm assembly is designed for strength, without dead weight. The simple toggle principle of the linkage eliminates troublesome parts, requires extremely low oil pressure.

Check these other Heil dump unit advantages:
Lightweight design for bigger payloads;
no-sag floor construction for long body life;
low mounting height to make hand-loading easier.

THE HEIL CO.

Dept. 5113, 3005 W. Montana St., Milwaukee 1, Wis.
Factories: Milwaukee, Wis. — Hillside, N. J.

BH-7

Sales Offices: New York, Union, N. J., Washington, D. C., Atlanta, Cleveland, Milwaukee, Detroit, Chicago, Kansas City, Denver, Dallas, Los Angeles, Seattle; Rio de Janeiro, Brazil.

PLATFORM CONVERSION HOIST

Heiliner 2-wheel Tractor and Scraper

CONTRACTOR'S BODY

New Equipment . . .

Continued from page 50

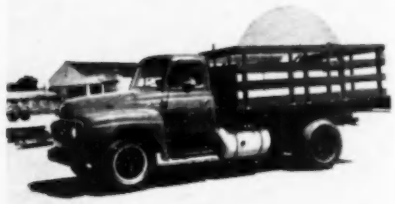
Designed originally for gold dredging use in stacking wet rejects, Riffle Grip is also recommended for use in sand and gravel plants where wet sands and gravel must be conveyed up steep inclines for stockpiling.

Medium-Duty Trucks

Manufacturer: International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.

Claims: The motor truck division of I-H has placed in production five medium-duty models in the R-160 series with liquified petroleum gas fuel systems.

The new series of LPG-powered models ranges in gross vehicle weight from 14,000 to 17,000 lbs. The models are the RP-160, 161, 162, 164 Loadstar for heavy hauling, and RP-165 Roadliner for over-the-road tractor



service. Engine is the 108-hp valve-in-head International Silver Diamond 240.

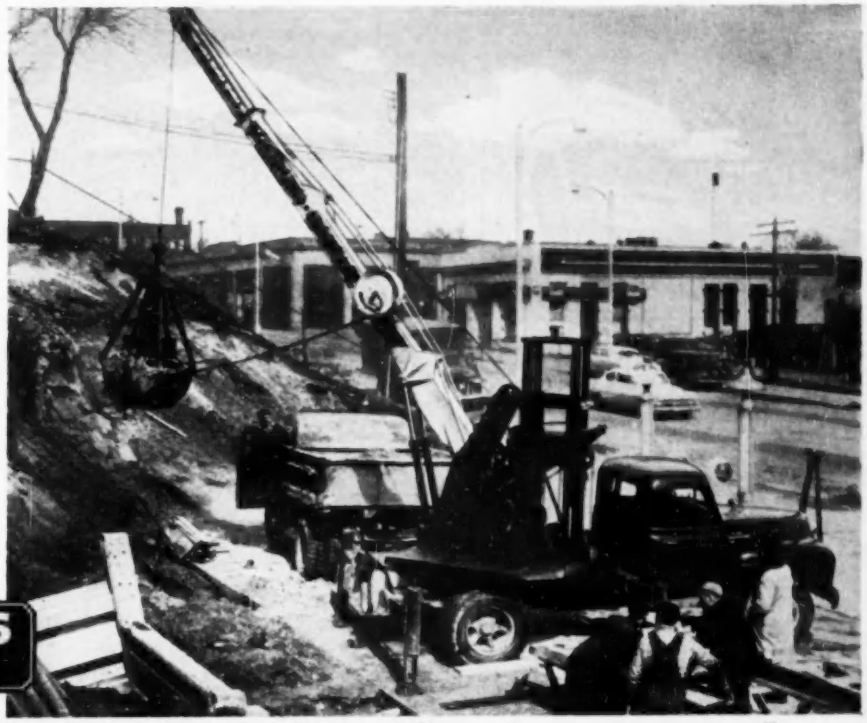
Compression ratio of 8.4 plus added horsepower and torque characteristics may be obtained in the SD-240 with LPG fuel system through installation of 10,000-ft. pistons.

Forty-three gallon water capacity (about 34 gallon LPG) single or dual fuel tanks are available in 130-in. wheelbase models. Forty-three or 62 gallon water capacity (about 34 or 50 gallon LPG) single or dual tanks are available in 142, 154, and 172-in. wheelbase models.

Maintenance Grader

Manufacturer: Aveling-Barford, Ltd., Grantham, England.

Claims: The manufacturer has pro-



Here the Hydrocrane excavates for a retaining wall. Boom reaches out for extra passes — without moving truck an inch! Quick-set outriggers provide outstanding machine stability . . . even permit the ⅜-yd. clamshell bucket to be handled with a flat boom, fully extended. Every crane function fully hydraulic. Travels up to 50 mph on open road. Simple hand levers — no foot brakes.

BUCYRUS ERIE

HYDROCRANE'S built-in reach grabs the "EXTRA-DOLLAR" jobs

Bucyrus-Erie Hydrocrane with hydraulically telescoping boom gives you 8 ft. more boom — right at your fingertips. This special extend-retract action means extra dollars in savings on regular jobs . . . extra dollars in profits on special jobs ordinary outfits can't handle. Look:

1. *On erection work* boom reaches between girders . . . hoists concrete buckets, planking, etc., to upper stories . . . saves hundreds of man-hours.
2. *On road work* telescoping boom reaches under branches, over obstructions while handling pipe, culvert, or levelling shoulders . . . moves material into tunnels and low underpasses . . . handles dozens of close-quarter jobs.
3. *On yard work* reaches into boxcars . . . over fences . . . between stockpiles to move material, load trucks, etc., in a hurry.

QUICK CONVERTIBILITY TO *HYDROHOE*

By actual stop watch test, crane has been converted to drag-shovel front end by one man in *less than one hour!* And on trenching, telescoping action of Hydrohoe boom cuts lost time moving up as much as 40 percent.

Get the full story on the all-hydraulic Hydrocrane with its many attachments.
SEND COUPON TODAY

Here the Hydrohoe starts a trench cut. Available with either 12- or 18-inch dipper—equipped with hydraulic ejector that kicks dirt out.

BUCYRUS-ERIE COMPANY
SOUTH MILWAUKEE, WISCONSIN

BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

Gentlemen: ☐ Please send me Hydrocrane literature.
☐ Please send me Hydrohoe literature.

Name.....

Company.....

Address.....

City..... State.....

46H53C

NEWCO* WIRE ROPE CLAMP & THIMBLE

*trade mark

. . . gives holding efficiency of 95 to 100%.

. . . will not collapse.

. . . no shearing of bolts.

BEARING SERVICE is many times heavier, for example, the ⅝" Newco has a ½" bearing surface! Carries a heavier load, and the original cost is easily absorbed by savings on labor and longer life. In 12 sizes

⅜" to 1" size STEEL CLAMPS (Approx. 80,000 PSI's)

⅛" to 5/16" MANGANESE BRONZE (Approx. 110,000 PSI's)

See your distributor or write direct to

NEWMAN MFG. & SALES CO.

Dept. EE-11, Box 5939, Kansas City 11, Mo.

duced a light maintenance grader that will, at low cost, handle many of the smaller jobs on which larger machines have had to be employed.

With a working weight of 8,000 lbs. and a big 42 B.H/P. motor, the new grader is capable of moving large amounts of earth and because of its sensitive hydraulic controls, to grade to fine limits. Grader features comfortable operator seating within easy reach of all controls.

Overall length of machine is 13-ft. Overall height without cab is 5-ft. 2-in. Wheelbase is 8-ft. 10-in.

3-Way Truck Hoist

Manufacturer: Norweld, Inc., Loveland, Colo.

Claims: A 3-way hydraulic truck hoist has been specifically designed for all purpose use up to 10-ton capacity. Easy installation of the new hoist can quickly convert any 1½ or two ton truck into a dump truck that will dump (1) right side, (2) left side, and (3) off the end.

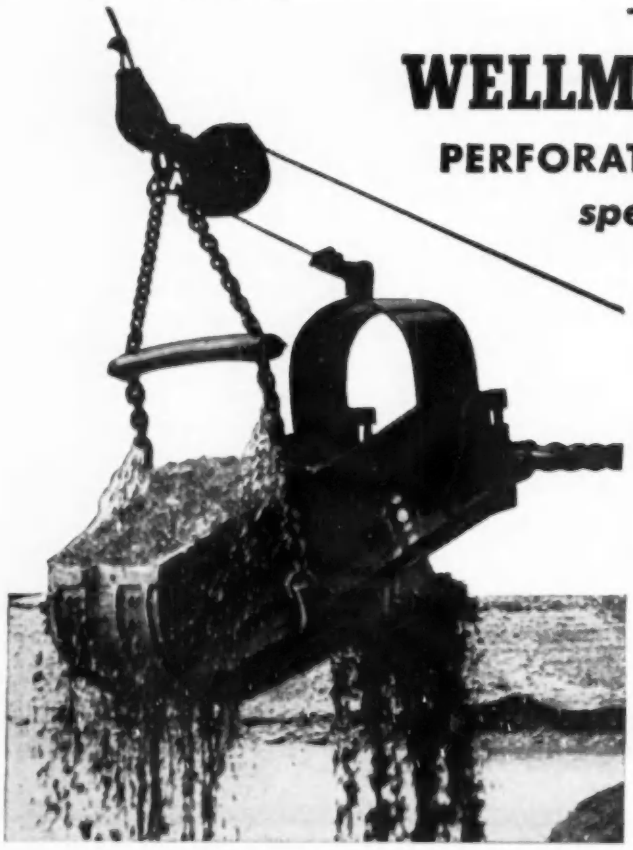
A simple alternative arrangement of pivot hinges enables the truck bed to be dumped any of three ways in a matter of less than 30 seconds changing time. Anchor pins placed in position on either side or at the end of the hoist frame let the heavy duty twin hydraulic cylinders lift the truck bed to dump in a choice of the three positions. The bed can also be locked for rough hauling of shifting loads.

The 3-way hoist comes in a complete self-contained unit ready to be mounted directly on the truck bed. No welding to the frame is required since the

hoist is complete with structural steel stringers and under bed reinforcing which are easily bolted to the bed and truck frame.

The new 3-way hydraulic hoist is built to outlast the life of several trucks. It is designed to be easily transferred to a new truck when desired. The unit is complete with a fully guaranteed ball bearing mounted gear pump and cab controls.

Further information can be promptly secured by writing now to the manufacturer.



WELLMAN *Williams Type*

PERFORATED DRAGLINE BUCKET

speeds the wet jobs

• You get big loads fast with this Wellman Perforated Dragline Bucket because excess water goes out while gravel stays in on jobs such as illustrated.

Built of special alloy steel—all welded for strength plus light weight. You can work faster with less maintenance with Wellman dragline buckets.

Want Facts?

Write for free descriptive bulletins.

Dragline, Clamshell, Custom-Built Buckets, Stone and Wood Grabs.

THE WELLMAN ENGINEERING COMPANY

7000 Central Avenue • Cleveland 4, Ohio

Heisler and Woods keep the El Monte, Calif., headquarters yard neat. Extra care in arranging equipment and parts pays off dividends in all-around efficiency.

Contracting Business...

Continued from page 25

Bressi-Bevanda Corp. in connection with a relocation at Whittier Narrows Dam. The siphon was laid and cut into the main line without a by-pass by the simple expedient of arranging for passage of the water through a nearby utilities line at Rose Hill Cemetery.

Out of the experience of these jobs and the backgrounds of both men have come some valuable lessons.

Metropolitan pipeline jobs, for example, have two principal aspects which need watching. On shallow work five to six feet deep, the biggest problem is usually interception of utilities already laid. If a construction firm will take the time and effort to locate each sewer, gas line, water line, electric conduit, telephone cable and so on before the construction machinery moves in, good operators can always carry the work past these places safely and with good speed. When these utilities are cut accidentally, there is always an element of expensive lost time in the contractor's work, to say nothing of the damage to his reputation.

On deeper pipelining, utilities interception continues to be exactly the same problem, but it reaches a diminishing point of importance because safety on a deep ditch is much more vital. Construction progress on deep, dangerous trenches must strike a happy balance between safe operation, speed, and good work. Even the workmanship on a pipe joint is much more important in a deep trench than it is on shallower work, because failures are always more expensive to locate and repair.

Heisler & Woods have also learned the importance of keeping accurate cost records, and their bids, sharp as they are, always reflect in a realistic way the actual cost of operating equipment under 1953 conditions. Their office routine is simple but adequate. Fuel, lubricants, parts and materials are entered on office records and charged to the jobs concerned. It is especially important for them to keep their records accurately on machines like the cranes, which move around day by day.

The firm now has 45 men on the payroll on a steady basis, but both Harry Heisler and Lee Woods have not lost one iota of the personal touch with their jobs. In fact, at least one of the partners checks every job personally at least once a day. By checking personally on fuel and oil supply, frayed cables, and other such sources of potential trouble, both partners have eliminated an untold amount of down time from their operations. They feel, too, that the personal touch is important in employee relations. When either man walks on a job he is on a first-name basis with his operator.

Excellent equipment upkeep is the result of many years pride on the part of both men. In practically 100% of the cases of parts failure, the replacement part is on hand and installed before the actual breakdown is allowed to happen. It pays off, too. Customers know they have a good machine on their jobs when they give the work to Heisler & Woods.

"There's nothing mysterious about equipment upkeep," Harry Heisler explained. "Manufacturer's literature tells you everything you need to know. It's just a matter of applying those things in the field. Instruction books never did much good locked up in a desk."

MORE THAN A BOOK
A COMPLETE SYSTEM

ESTIMATE CONSTRUCTION COSTS with SAFETY

PRACTICAL - PRECISE - SAFE
DEPENDABLE - RELIABLE

Prepare Construction Estimates and Reports by the application of a tried and proven system, that presents numerous illustrations, and examples, of construction plant costs, work item costs, general and indirect costs, summarization of costs, cost adjustments, profit allowance, write-up, pricing of competitive proposals, extensive classified construction work check lists, broad glossary of construction terms, with illustrated supplement of Special Estimating and Report Forms.

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Why Sellin Bros. are sold on **CAT*** performance

Harold and Roy Sellin, Hawley, Minn., are strong for the D8 Tractor and No. 80 Scraper. They say: "For success in earthmoving, buy Caterpillar!"

Building a mile of farm-to-market road near Hitterdal, Minnesota, Sellin Bros. made excellent time in spite of wet, boggy conditions. Their equipment on this job included four Caterpillar D8 Tractors and two No. 80 Scrapers.

The big units averaged 6 round trips per hour, carrying loads up to 22 cubic yards of heavy material, over a haul distance of 500 feet. Together the scrapers moved about 3,000 cubic yards in a 12-hour day. The earth handled was black loam and heavy, wet clay, and part of the haul was through standing water.

Here's what Harold and Roy Sellin say about their machines: "Caterpillar equipment is the best made, and durability is the outstanding feature. The No. 80 Scrapers load much faster and easier than other makes of machines, and production is higher."

When you're buying a scraper, look at your *last* cost *first*. Compare the Cat No. 80 or the new No. 90 with any other make on cost per yard. Then figure the cost of repairs and down time. You'll find Caterpillar Scrapers not only *outperform* but *outlast* other makes, in every kind of going.

Your Caterpillar Dealer will give you a demonstration right on your own job—*prove* that the big yellow rigs will produce more, in less time, at lower cost. Call him today!

Caterpillar Tractor Co., Peoria, Ill.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks — ®

NAME THE DATE... YOUR DEALER WILL DEMONSTRATE

NOT in the Contract

A Chinese visitor to these shores was heard to observe:

"Funny people, you Americans. You take a glass, put sugar in it to make it sweet and lemon to make it sour. Then you put gin in to make it hot and ice to make it cool. And then you say, 'Here's to you!' and drink it yourself."

Have you heard about the pregnant bed bug that was going to have a baby in the spring?

A man went to see a friend of his who was in the hospital, and inquired what had brought him there. "Well, it happened this way," said the sick man weakly. "I tried to kiss the hotel chambermaid and she busted a vessel."

"Then why ain't she in the hospital instead of you?"

"She busted the darn thing on my head."

A small boy was listening to a national convention program when the radio announcer said: "The speaker is now making his way to the rostrum."

"Well, for gosh sakes," exclaimed the youngster, "What does he want to tell that on the air for."

Two motorists met on a street too narrow for two cars to pass. "I never back up for an idiot," yelled one driver. "That's all right," said the other shifting into reverse, "I always do."

Rancher: Well, friend, how many sheep would you say are in that flock?

Visitor: 500.

Rancher: Amazing. But how did you guess?

Visitor: I didn't. I counted the legs and divided by four.

The auto had stood in the one-hour parking zone twice that time. Under the windshield wiper was this note: "Attorney — Am inside attending to business."

Tucked close beside it were two other slips of paper. One was a parking ticket, the other a note reading: "Policeman—Am outside attending to business."

Professor: "A fool can ask more questions than a wise man can answer."

Student: "No wonder so many students fail your exams."

A contractor was making his annual trip into the North Woods for some fishing and came to the place where he always hired his guide. Making an inquiry, he said: "Where's Snaky Morgan, my guide?"

"Why, ain't you heard?" someone replied. "He's been dead six months."

"That's too bad," said the contractor. "He was the funniest drunk and the biggest liar I ever met."

When the contractor had gone, the other man remarked to his companion:

"Now, ain't that just like some people? Never say anything nice about a guy until he's dead."

The bystander had been watching the college football team at practice. When they had finished he spoke to the fullback.

"Say," the man asked, "I haven't seen a game in years. Have any of the objectional features of the game been abolished?"

"Yeah!" replied the fullback, "Our coach and the alumni now pick the members of the faculty!"

It had rained hard. The windshield was sprayed with muddied water and the car had narrowly escaped several collisions. "Wouldn't it be a good idea to wipe off the windshield?" asked the anxious passenger.

"Not worth the bother," replied the driver, cheerfully, "I left my glasses at home."

He asked for burning kisses,
She replied in accents cruel:
"I may be a red-hot mama,
But I ain't nobody's fuel!"

Mrs. Murphy was dying. She called her husband to her side and said, "Tom, you've been fighting with my mother for over thirty years and now you don't talk to her. Please do me a favor and ride with her in the first car at my funeral."

"I refuse to ride with that old battle-ax," said Tom.

"Please grant a dying woman this one last favor and ride with her to the cemetery," said Mrs. Murphy.

"Okay," said Tom, "though it will spoil my whole darn day!"

"Anyone else caught in this landslide with you, Hank?"

BUCYRUS-ERIE Announces

the 180-W

. . . A NEW 5 CU. YD. WALKING DRAGLINE

Combining Big Output Capacity And Long Working Reach With Unusual Portability

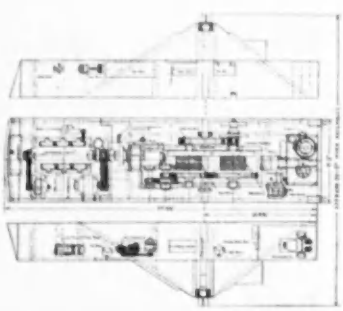
THIS NEW Model 180-W offers the operating features that have proved so successful in many years of actual field performance by the outstanding line of Bucyrus-Erie walking draglines. In addition, it offers exceptional shipping and erecting ease for a machine so large — only partial disassembly necessary for moving from one construction or stripping job to another. This means substantial savings in moving time and expense, as well as increased machine value throughout its entire life.

- Big output capacity from fast cycle, quick moves, steady all-weather performance.
- Long reach where needed — with 5-yd. bucket the 180-W will move material 244 ft. in a 180 degree swing.
- Knocks down into large sections for easy moving and erecting.
- Easily maneuvered to most effective working position with Bucyrus-Erie's exclusive walking mechanism.
- Large bearing area permits working on soft ground.
- Low maintenance with a minimum of moving parts.
- Simple main machinery.
- All-welded boom with tubular braces for light weight, plenty of strength.

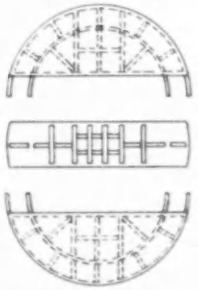
Send for complete information on the 180-W.
5-yd. bucket with 120 ft. boom.
4-yd. bucket with 135 ft. boom.

40L53C

BUCYRUS-ERIE COMPANY
SOUTH MILWAUKEE, WISCONSIN



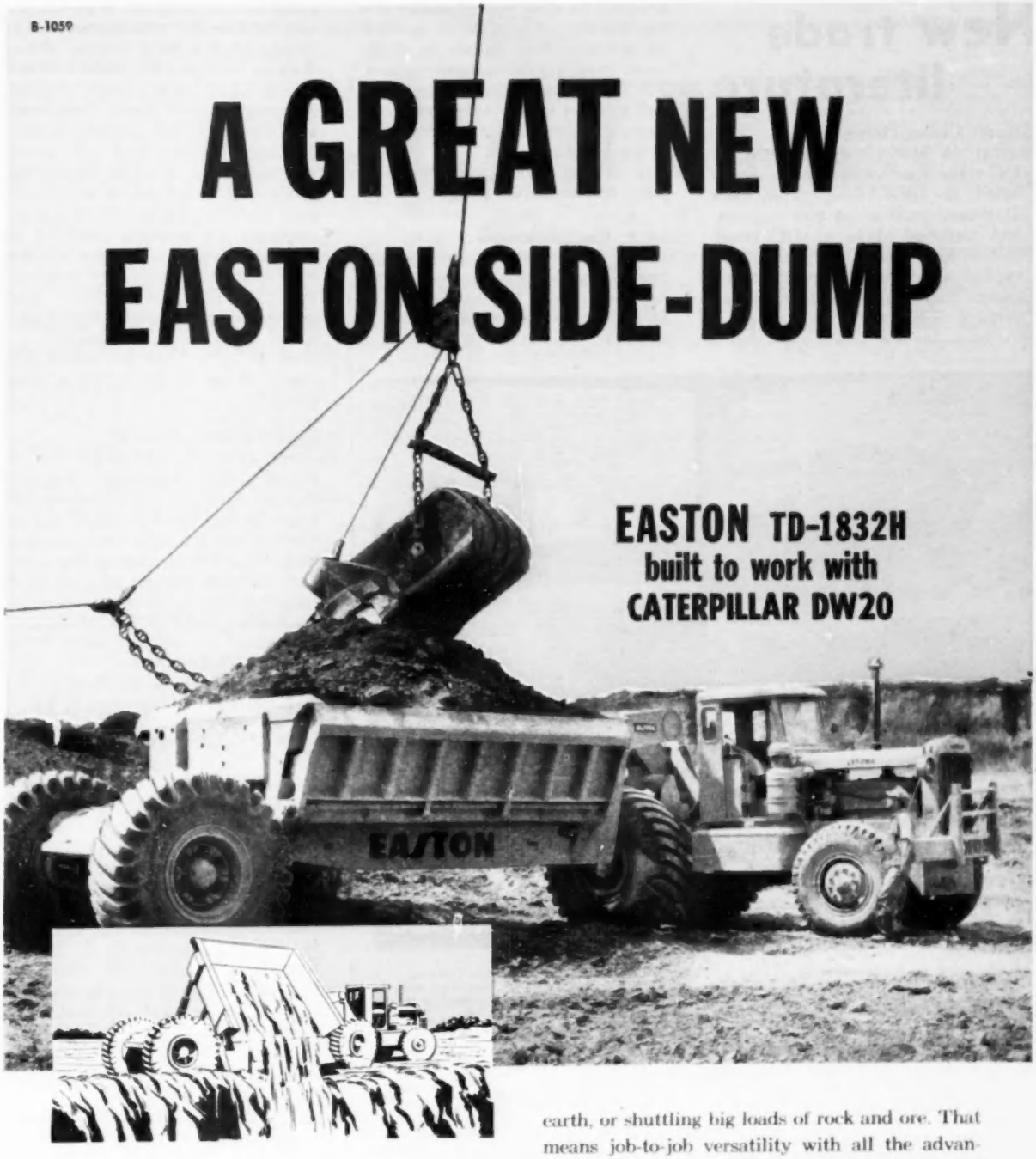
For shipment the side wings unbolt from center section of revolving frame. The main machinery remains fully assembled and in proper alignment. The entire machine is easily loaded on five U.S. railroad cars.



The base is made up of three separate welded-steel sections which are joined in the field by bolting flanges. It is easily disassembled and shipped.

B-1059

A GREAT NEW EASTON SIDE-DUMP



Here is the trailer that will change the whole picture of side-dump hauling in off-highway service. It's Easton's most versatile big side-dump... job-proved and ready for rugged all 'round service in earthmoving, mining and quarrying. Big single tires, low center of gravity, and outboard-mounted hydraulic jacks assure remarkable lateral stability even while dumping on the run. The big new TD is equally at home windrowing a 32-ton load of earth, or shuttling big loads of rock and ore. That means job-to-job versatility with all the advantages of side-dumping! Every feature of the Easton body, axle, and automatic door has been proved for dependability in the most rugged type of earth and rock handling service. Now available in 24 and 32 ton capacities. See your local Caterpillar Dealer for complete information.

Easton Car & Construction Company • Easton, Pa.

EASTON®

New trade literature

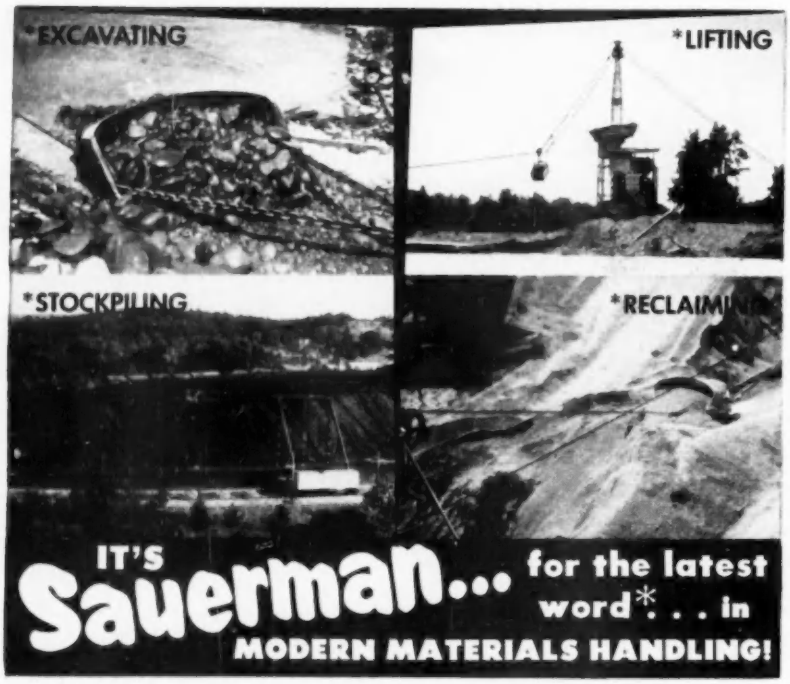
Subject: **Crane Drive**
Content: A new 12-page bulletin on DC crane-drive equipment is designated as GEA-5408A. The well-illustrated publication uses cutaway and exploded views of DC crane motors and control, in addition to typical speed-load and performance curves. It points up outstanding features of G-E crane-drive equipment designed to meet varied duty-cycle requirements, from accurate spotting by machine-shop cranes to high-speed lowering by magnet cranes. The G-E built-in magnetic brake as well as other components and accessories also are pictured and described in the bulletin.
Where to get: General-Electric Company, Schenectady 5, N. Y.

Subject: **Euclid School**
Content: A new folder presents an outline of the facilities at the Euclid Service Training School. Courses to be offered at the school are: #1—General—All Models; #2—10, 15 and 22 Ton Rear Dumps; #3—22, 34 and 50 Ton Rear Dumps; #4—Bottom Dumps—All Models; #5—12 & 15.5 Yard, Single Engine Scrapers; #6—18 Yard, Twin-Powered Scraper; #7—Dealer Service Manager Course; and #8—Parts Course. There will also be special courses for groups of 10 to 15 persons wishing particular coverage or emphasis not normally provided in the other courses. Classes of one week's duration each will begin on the first Monday of November, and will continue through April. The folder is available upon request.
Where to get: "Service Training," Euclid Road Machinery Co., Cleveland, O.

Subject: **Tractor-Shovel**
Content: The Hough Model HR 4 Wheel drive "Payloader" tractor-shovel is the subject of a new 16-page catalog which contains action views of the one cubic yard machine on earth and material handling jobs. Included are pictures and detailed specifications of all seven sizes of Payloaders. Copy of this catalog can be secured by ordering form #255 from the manufacturer.
Where to get: Frank G. Hough Co., 708 Seventh St., Libertyville, Ill.

Subject: **Diesel Engines**
Content: The long list of applications for Caterpillar Diesel engines is covered by photographs and text in *The Power Parade*, a booklet recently released by the manufacturer. The eight-page booklet carefully balances material on the many uses of Caterpillar Engines with the vital data concerning research, engineering, and manufacture. In all, 28 different applications are depicted. Particularly noted are construction jobs, sawmills, and oil drill rigs. Request Form 30757.
Where to get: Caterpillar Tractor Co., Peoria, Ill.

Subject: **Tailgate**
Content: A new bulletin on the improved Heiloader elevating truck tailgate is ready for all truck users. The four-page bulletin pictures the Heiloader in various stages of operation. A large, detailed photograph illustrates the exclusive manufacturing and safety features of the new, improved hydraulic tailgate. The same illustration utilizes a two-color treatment showing in detail how the tailgate looks on a truck. Complete specifications for all types of installations are clearly given. Request bulletin BH-53105.
Where to get: Heil Co., Milwaukee 1, Wis.



Upper left: 4-cu. yd. Crescent Scraper excavating from a river bottom, brings in a load of stone with very few fines for a western sand and gravel company.

Lower left: 8-cu. yd. scraper machine is stockpiling 300 tons per hour, over an arc of 450 feet radius in a 225,000-sq. ft. storage area. Tail tower is remotely controlled from elevated cab above hopper.

Upper right: 2-cu. yd. Slackline Cableway spanning an average of 450 feet, lifts and conveys from an underwater deposit to a high hopper at the rate of 75 tph.

Lower right: 2-cu. yd. Crescent, working between a fixed head point and movable tail tower, reclaims phosphate from all points about the periphery of a roughly semi-circular storage area.

Sauerman systems are providing efficient, economical materials handling at installations throughout the world. Over large or small areas . . . indoors or out . . . on special or routine jobs.

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SAUERMAN BROS., INC.
574 S. Clinton St., Chicago 7, Ill.

SAUERMAN BROS., INC.

TO ADVERTISE: All advertising in this section is payable in advance. Rate: $1.00 per line, or $12.00 per inch of 12 lines. Minimum charge $4.00. No discounts; no commissions. Please count your copy carefully to avoid delay. Each line contains 41 characters (34 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number, if blind advertisement is desired. Be sure to enclose the correct amount of money with your order. Closing date—15th of preceding month. Example: January closes December 15th.

TO INQUIRE: Be sure to address your inquiry to the advertiser by using the correct box number. Mail your letter in care of Excavating Engineer, South Milwaukee, Wisconsin. Write each advertiser a separate letter. Do not write us for name and address of advertiser. This information will not be given out. We have no information about the equipment advertised other than that shown in the advertisements themselves.

LARGE SHOVELS, CRANES, DRAGLINES—2½ YDS. & UP

Model 625-E Page Electric 9 cubic yard walking dragline, with 150 ft. boom, serial no. 178, located Central Ohio; machine working and in excellent condition; price: $130,000 net, loaded on cars; complete list of spare parts not included in price. Box 3551

Complete dragline equipment including 90 foot boom less bucket removed from Bucyrus-Erie 100-B, serial #23067; Price: $5000. Morrison-Knudsen Company, Boise, Idaho.

2 Marion 111-M draglines, 90' boom, twin 6-71 GM Diesel Engines, long crawlers, wide pads; one available in January '54, the other available in Spring '54; these machines in excellent condition; recently completely overhauled; real bargain. Sallisaw Stripping Company, Box 668, Fort Smith, Arkansas.

2—9-W Bucyrus Monighan Draglines.
1—5-W Bucyrus Monighan Dragline.
1—200-W Bucyrus Monighan Dragline.
1—120-B Bucyrus Elect. Dragline & Shovel.
1—44-B Bucyrus Dragline & Shovel.
1—9-W in Ohio—others in Wash. & Idaho.

J. A. TERTELING & SONS, INC.
Box 1428 Ph. 4-3576 Boise, Ida.

SMALL SHOVELS, CRANES, DRAGLINES—UP TO 2½ YDS.

Bucyrus-Erie 15-B dragshovel, ½ cu. yd. Buda gas engine, 20 treads, 3 years old, only used one year.
Quick-Way combination shovel and crane on Coleman 4 wheel drive truck.
Michigan ⅜ cu. yd. truck shovel with 30' crane attachment.
Keystone model 18-A dragshovel gas engine in good condition.

Stuart M. Christhilf & Co., Inc.
134-136 West Mt. Royal Avenue
Baltimore 1, Maryland

¾ yd. Byers No. 83 clamshell, dragline (less bucket and backhoe attachments), new January, 1947, GM-371 engine, 40-ft. boom, 24-in. treads. In good operating condition. Box 3532

1 Bay City Model 65—1¼ yd. Shovel Cummins Diesel, 3 yrs. old. Overhauled March, 1953. Location, Indiana. Very good operating condition. Box 3533

Northwest model 25: 6; 80D; 95. Manitowoc 6500; 4500 new—will rent. Bucyrus 54-B; Monighan 5W; 7W; 9W; 450.
A. W. Nevers Phone 32 Mt. Pleasant, Iowa

54-B Diesel Bucyrus-Erie Shovel, Serial No. 35011; price: $22,500 F.O.B. cars. Inspection can be made at the Douglas Mine, Chisholm, Minnesota.

Bucyrus-Erie Model H-3 Hydrocrane. Used less than four weeks. Complete with crane-clamshell equipment—⅜ yd. clamshell bucket and backhoe equipment. Mounted on Chevrolet two ton, two speed axle truck. Price, $10,000 cash f.o.b. Albany, Georgia. Box 3524

2 model 50-B Bucyrus diesel powered machines, without front end equipment, powered with Atlas Diesel engines, Serial #9929 and #10873; these machines immediately available, as is, located near Seattle, Washington. Clyde Equipment Company, Seattle, Washington.

Lima 1201 combination shovel and dragline. Cummins diesel engine, 80' dragline boom. Location middle west; priced to sell. Box 3548

MISCELLANEOUS EQUIPMENT

Walking draglines, Monighan 450W, 200W, 9W, 6W, 5W, 3T; Marion 7200; Page 625-E.
Whirley portal gantry cranes (3), 35-50 tons.
Locomotives, 7 to 80 tons (9), diesel, gas.
Shovels, draglines, cranes, 1½ to 14 yds.
Diesel-elec. generator sets, 1600, 520 KW.
Steel stiffleg derrick, 65 ton, elec. hoist.
Euclid, Mack trucks, 15, 22, 32 tons, rear.
Marion 7½, 5, 4, 2½-yd. shovels, elec., diesel.
P&H 1400, 1055, 955, 700 shovs., drgls., cranes.
Bucyrus 55B or 52B 2½ yd. shovel attachment.

H. Y. SMITH COMPANY
828 N. Broadway Milwaukee 2, Wis.

Loraine 40 truck crane on A.C., $4400; LaCrosse 25-ton low-bed drop-deck trailer, $2400; Byers 83 hoe and crane, 1948, $10,500; Haiss ¾-yd. bucket, $450. Phil Anzelmo, East Rutherford, New Jersey. Phone: Prescott 9-4143.

H. O. PENN MACHINERY CO. OFFERS
2 Caterpillar #80 scrapers with side boards, rebuilt and in good condition. Each: $10,000.
4 Euclid model 25FTD four-wheel tractors, tractor with Model 58A two-wheel bottom dump wagons, Cummins Diesel Engines. Capacity 15 cu. yds., 20 tons. Rebuilt and guaranteed. Each: $10,500.
Caterpillar No. 12 Diesel motor grader, leaning front wheels, cab, scarifier, lights, S/N 9K4113. Price: $6,500.
Bucyrus-Erie 44-B chain crowd shovel with 2 cu. yd. dipper; Buda Diesel Engine; Kohler Light Plant; rebuilt and guaranteed. Price: $28,500.
Backhoe Attachment ¾ yd. for Marion Model 331; good condition. Price: $1,000.
International TD24 diesel tractor with Bucyrus-Erie straight bulldozer blade and DD cable control; really fine condition. Price: $15,500.
International Model TD18A diesel tractor with hydraulic bulldozer blade and Bucyrus-Erie DD cable control; excellent condition. Price: $7,500.
4 LeTourneau Tournapulls Super C with LPD carryall scrapers, 12.1 cu. yd., Cummins 6 cyl. diesel engines; good working condition. Each: $4,500.
Write for complete list of used machinery.

H. O. PENN MACHINERY CO., INC.
140th Street and East River
New York 54, New York

2 Bucyrus-Erie 42T Blast Hole Drills; serial #48222 & 48223; shipped April 1947; Electric for AC 440/3/60 power supply; 36" wide cat treads, hydraulic jacks, electric lights, operator's cab; drilling tools—9", 3½x4½-7API joint; cable equipment; located central Indiana. Also a #12 bit dresser with complete bit heating equipment will sell separately or with drills. Box 3550

D-7 w/hyd. dozer #3T24800, $4800; D-7 w/ Trackson pipelayer boom, $3000; TD9 w/hyd. angledozer, $1900; HD10 w/DD pcu and dozer, $1500; Longhorn trencher, rubber tires, used 4 months, $700; Hansen ⅝-yd. shovel, $1800; Huber 10-ton roller, $650; 2 Super "C"s," excellent condition, $3600 ea.; Lorain 820 dragline, 80 ft. boom, #17646, $19,000. Air Compressor Rental Co., 19615 Nottingham Rd., Cleveland, Ohio, Phone: Kenmore 1-8000.

Stedman 36" two cage Disintegrator Machine D, #1554, V-Belt drive, two extra rotors; like new. Price: $2500.
Stedman 54" four cage Disintegrator machine #1553, V-Belt drive; excellent condition. Price: $4200.

BLUE ROCK, INCORPORATED
Box 110, Washington C. H., Ohio
Phone 201—Greenfield, Ohio

HELP WANTED

SUPERINTENDENT WANTED

Large eastern quarry operator has opportunity for experienced superintendent. Write giving full experience, references, age and salary, to:

Box 3549

c/o Excavating Engineer
South Milwaukee, Wisconsin

POSITION WANTED

Operating engineer, 15 years experience various parts of world. Have operated Lima 1201 and 802 shovels and draglines as well as many Bucyrus-Erie's including 120-B Electric. John I. McAdams, c/o Ray Bergman, Main Road, Akron, New York.

May We Help You?

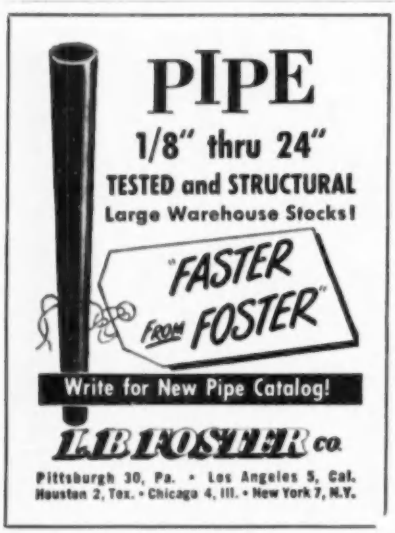
If you do not find the equipment you want listed in these columns, write to:

Excavating Engineer
South Milwaukee Wisconsin

Notes from the manufacturers

American Manganese Steel Div. of American Brake Shoe Co., New York, N. Y., has appointed John S. Carr manager of pump sales. Formerly a sales engineer, Carr has been with the company since 1949. He will be located at the Amsco plant in Chicago Heights, Ill.

Caterpillar Tractor Co., Peoria, Ill., has named Roger T. Kelley, labor relations manager of the Peoria plant. Kelley had been industrial relations manager of Trackson Co., the Milwaukee subsidiary, for four years. He joined Trackson in 1946 following four years service in the Pacific with the US Navy. In October 1947, he was named assistant manager of the industrial relations department and became manager a year and a half later. Succeeding Kelley at Milwaukee will be Robert L. Sutton, currently Trackson training manager, who has served 17 years in the Caterpillar organization.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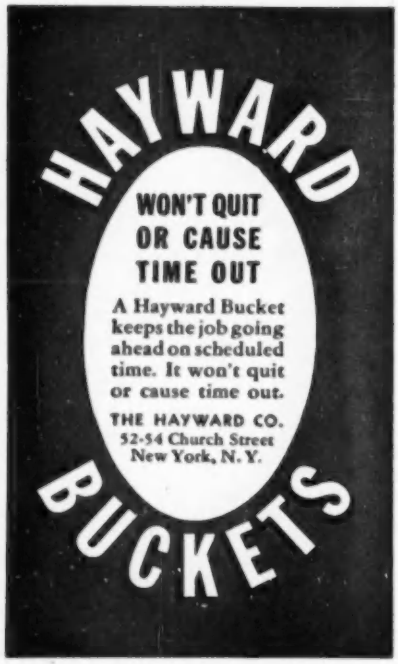
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WON'T QUIT OR CAUSE TIME OUT
A Hayward Bucket keeps the job going ahead on scheduled time. It won't quit or cause time out.
THE HAYWARD CO.
52-54 Church Street
New York, N. Y.
BUCKETS

Chain Belt Co., Milwaukee, Wis., has acquired the controlling interest in Crothers Engineering, Ltd., of Toronto, Ontario. The new company will be operated as Canadian Chain Belt, Ltd. Company officers are L. B. McKnight, president; O. W. Carpenter, vice president and treasurer; J. D. McNish, secretary; and Charles Barkworth, general manager. For the present, the Canadian company will continue general metal fabrication and machine work for industry in Canada. It is expected, however, that certain Chain Belt products will soon be added to its output. The first of these will probably be items of its construction machinery line, as its Rex truck-mounted concrete mixers.

Euclid Road Machinery Co., Cleveland, O., has appointed Colorado Builders' Supply Co., as its new distributor in Colorado, most of Wyoming, and 11 western counties of Nebraska. Headquarters of Colorado Builders' Supply is at 1300 West Evans Ave., Denver. A branch is operated at Casper, Wyo. Long established as an outstanding supply house with excellent sales and service facilities, the firm is headed by James D. Maitland. Charles Hansen is general manager and Charles E. Berry, manager of the equipment division.

Fort Dodge Tent and Awning Co., Fort Dodge, Ia., has announced a change of name for the Burch Canvas Products Co. of Des Moines, Ia. Due to expansion at the company, the name will now be Burch Manufacturing Company, Inc. The management and ownership will be the same.

Harnischfeger Corp., Milwaukee, Wis., has appointed Frank C. Edwards general manager of the P&H Diesel Engine Division in Crystal Lake, Ill. Edwards has served the company in a number of different capacities since he first began his employment in the company's Milwaukee shops in 1925. For the past four years, Edwards has held the position of sales manager of P&H's Small Excavator Division. Edwards is a graduate of the University of Nebraska. J. F. Catalane will succeed Edwards.

Hercules Powder Co., Wilmington, Del., has made the following appointments: Jack D. Hayes, Jr., director of operations, and Clarence W. Ballard director of sales for the explosives department; George A. Parker as manager of the explosives sales office in Pittsburgh, Pa. Also named were Philip R. Hammond as assistant manager in the Pittsburgh office, and Thomas E. Brown manager in Hazleton, Pa. Harry V. Chase and LeRoy Keane became assistant general managers of the explosives department.

Frank G. Hough Co., Libertyville, Ill., has appointed two new district representatives to work with Hough distributors in the sales and promotion of Payloader tractor-shovels and tractors. Jack C. Bever will operate in the sales district comprising the District of Columbia, Maryland, Virginia, West Virginia, and the Carolinas. Dwain Richey will travel in Arkansas, Louisiana, Oklahoma, Texas, and New Mexico. Both men have recently completed a comprehensive training program at the factory. Bever is a civil engineering graduate of Illinois Institute of Technology and was a highway engineer with the State of Illinois. Richey is a graduate of Iowa State College.

Koehring Co., Milwaukee, Wis., has appointed E. A. Smith vice-president and manager of its two export sales subsidiaries, Koehring Inter-American Co. and Koehring Overseas Co. Until his recent appointment, Smith was a sales engineer for C. S. Johnson Co. of Champaign, Ill., a Koehring subsidiary. Smith replaces R. E. Stewart who resigned recently. Koehring's export branches handle sales of products produced by Koehring subsidiaries as well as those made by the parent firm.

Leschen Wire Rope Division, H. K. Porter Co., Inc., St. Louis, Mo., has appointed G. N. Dow Chicago District sales manager. Until his present promotion Dow had been district representative for Leschen in Detroit, Mich. The Chicago sales district includes Northern Illinois, Iowa, Wisconsin, Northern Indiana, Michigan, and Minnesota.

For dig-power it's CAT* Engines

When there's Caterpillar power behind the bucket you can look for real production. The shovel or backhoe will be working—not standing idle while somebody tinkers with the engine.

This Caterpillar-powered Bucyrus-Erie 22-B is one of a pair owned by Calandro Construction Co., Scarsdale, N. Y. It's working on a 14,000-yard excavating job for foundations of the new Mamaroneck High School. Whether it's trenching with a 1-yard backhoe or loading trucks with a 3¼-yard dipper, the Caterpillar D318 Engine puts out plenty of digging power.

John Calandro, Jr., says: "Both of our Caterpillar-powered shovels as well as our D8 Tractor have given very satisfactory service over the many hours they have been operated."

You get economy as well as dependability when Cat Engines power your equipment. They operate without fouling on No. 2 furnace oil. And they're sturdily built to keep working with a minimum of down time.

Leading manufacturers can supply Caterpillar Engines in the machines they build, with 12 sizes available, up to 500 HP. For replacement power see your Caterpillar Dealer. He backs every product he sells with reliable service and a full stock of genuine parts.

Caterpillar, Peoria, Illinois.

CATERPILLAR*

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Have you *calculated* the economy of long-lasting wire rope?

Anyone using wire rope in quantity can't afford to guess whether it's a good buy. Each installation had better prove itself right down to the last decimal. That's how we want you to judge tough, flexible Preformed Yellow Strand. Its economies are the measurable kind: a fast rig-up and break-in . . . accurate control by the operator . . . prolonged service in the face of bending stresses, high speeds and shock loads. Seeing that you get the correct line for top production is the job of our special wire-rope engineers. Tell us now that you'd like to have one call.

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